OPERATION AND PARTS MANUAL

MULTIQUIP

Mikasa SERIES

MODEL MTX-80
MODEL MTX-90
TAMPING RAMMER
(ROBIN EH122D46530 GASOLINE ENGINE)

Revision #4 (11/06/09)

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THIS MANUAL MUST ACCOMPANY THE EQUIPMENT AT ALL TIMES.

⚠ WARNING ⚠

CALIFORNIA — Proposition 65 Warning

Gasoline engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.

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MTX-80/MTX-90 Tamping Rammer

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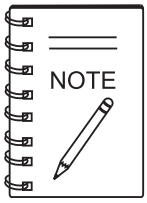

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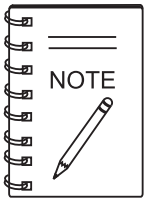
MULTIQUIP

MTX-80/MTX-90 — SAFETY MESSAGE ALERT SYMBOLS

FOR YOUR SAFETY AND THE SAFETY OF OTHERS!

Safety precautions should be followed at all times when operating this equipment. Failure to read and understand the Safety Messages and Operating Instructions could result in injury to yourself and others.



This Owner's Manual has been developed to provide complete instructions for the safe and efficient operation of the **MQ Mikasa, Model MTX-80/MTX-90 Tamping Rammer**. Refer to the engine manufacturers instructions for data relative to its safe operation.

Before using this rammer, ensure that the operating individual has read and understands all instructions in this manual.

SAFETY MESSAGE ALERT SYMBOLS

The three (3) Safety Messages shown below will inform you about potential hazards that could injure you or others. The Safety Messages specifically address the level of exposure to the operator, and are preceded by one of three words: **DANGER**,

DANGER

You **WILL** be ***KILLED*** or ***SERIOUSLY INJURED*** if you **DO NOT** follow these directions.

WARNING

You **CAN** be **KILLED** or ***SERIOUSLY INJURED*** if you **DO NOT** follow these directions.

CAUTION

You **CAN** be ***INJURED*** if you **DO NOT** follow these directions.

HAZARD SYMBOLS

Potential hazards associated with the operation of an ***MTX-80/MTX-90 Tamping Rammer*** will be referenced with Hazard Symbols which appear throughout this manual, and will be referenced in conjunction with Safety Message Alert Symbols.

WARNING — **Lethal Exhaust Gas Hazards**

Engine exhaust gases contain poisonous carbon monoxide. This gas is colorless and odorless, and can cause death if inhaled. **NEVER** operate this equipment in a confined area or enclosed structure that does not provide ample free flow air.

WARNING — **Explosive Fuel Hazards**

Gasoline is extremely flammable, and its vapors can cause an explosion if ignited. **DO NOT** start the engine near spilled fuel or combustible fluids.

DO NOT fill the fuel tank while the engine is running or hot. **DO NOT** overfill tank, since spilled fuel could ignite if it comes into contact with hot engine parts or sparks from the ignition system. Store fuel in approved containers, in well-ventilated areas and away from sparks and flames.

WARNING — **Burn Hazards**

Engine components can generate extreme heat. To prevent burns, **DO NOT** touch these areas while the engine is running or immediately after operations. Never operate the engine with heat shields or heat guards removed.

WARNING — **Respiratory Hazards**

ALWAYS wear approved ***respiratory*** protection when required.

MTX-80/MTX-90 — SAFETY MESSAGE ALERT SYMBOLS

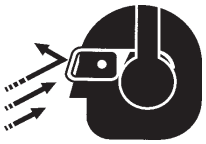
⚠ CAUTION — Rotating Parts Hazards

NEVER operate equipment with covers, or guards removed. Keep fingers, hands, hair and clothing away from all moving parts to prevent injury.

⚠ CAUTION — Accidental Starting Hazards

ALWAYS place the **ON/OFF** switch in the **OFF** position when the rammer is not in use.

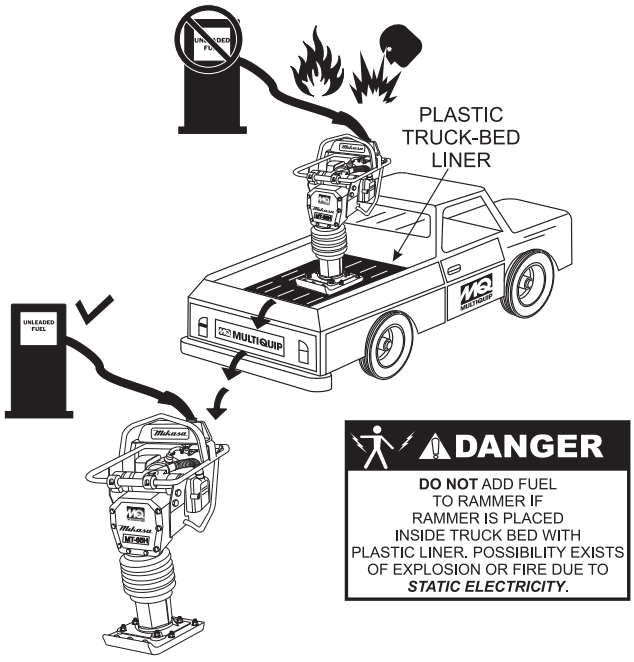
⚠ CAUTION — Eye and Hearing Hazards



ALWAYS wear approved eye and hearing protection.

⚠ DANGER — Refueling Hazard

NEVER refuel rammer when placed in truck bed with plastic liner. The possibility exists of explosion due to static electricity. When adding fuel, remove rammer from truck bed and place on ground.



⚠ CAUTION — Equipment Damage Hazards

Other important messages are provided throughout this manual to help prevent damage to your light tower, other property, or the surrounding environment.

⚠ CAUTION — Lifting Handle

Before starting operation, check the lifting handle to make sure there is no damage on the bolts, no cracks or breakage on the handle, and no fissure on the surface.

This handle is for ***manual lifting only***. Use handle to lift the shoe part of the rammer with the body laid down on the ground or truck bed. Use proper lifting techniques to avoid back injury.

Do not use this rammer as a rammer lift point. Use the lifting point on top of the rammer.

Do not move the rammer with the lifting handle and the front rollers more than 5 meters.

⚠ CAUTION — Read Manual

Before attempting to operate the pump, and to avoid serious injury to personnel, always read and understand operation manual. Failure to read and understand operation manual could result in serious harm or even death!

WARNING
To avoid injury, you MUST read and understand operator's manual before using this machine.
This machine to be operated by qualified personnel only.
Ask for training as needed.

DANGER **Read this manual!**

Failure to follow instructions in this manual may lead to serious injury or even death! This equipment is to be operated by trained and qualified personnel only! This equipment is for industrial use only.

The following safety guidelines should always be used when operating the MTX-80/MTX-90 Tamping Rammer:

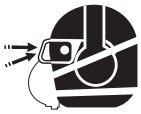
GENERAL SAFETY

- **DO NOT** operate or service this equipment before reading this entire manual.
- This equipment should not be operated by persons under 18 years of age.
- **NEVER** operate this equipment without proper protective clothing, shatterproof glasses, steel-toed boots and other protective devices required by the job.

- **NEVER** operate this equipment when not feeling well due to fatigue, illness or taking medicine.

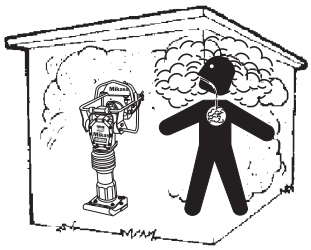
- **NEVER** operate this equipment under the influence of ***drugs*** or ***alcohol***.

- **ALWAYS** wear proper respiratory (mask), hearing and eye protection equipment when operating the rammer.

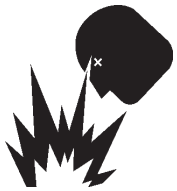


- Whenever necessary, replace nameplate, operation and safety decals when they become difficult read.
- Manufacturer does not assume responsibility for any accident due to equipment modifications.
- **NEVER** use accessories or attachments, which are not recommended by Multiquip for this equipment. Damage to the equipment and/or injury to user may result.
- **NEVER** touch the hot exhaust manifold, muffler or cylinder. Allow these parts to cool before servicing engine or rammer.

- **High Temperatures** – Allow the engine to cool before adding fuel or performing service and maintenance functions. Contact with ***hot!*** components can cause serious burns.
- The engine section of this rammer requires an adequate free flow of cooling air. ***NEVER*** operate the rammer in any enclosed or narrow area where free flow of the air is restricted. If the air flow is restricted it will cause serious damage to the rammer or engine and may cause injury to people. Remember the rammer's engine gives off ***DEADLY*** carbon monoxide gas.



- **ALWAYS** refuel in a well-ventilated area, away from sparks and open flames.
- **ALWAYS** use extreme caution when working with **flammable** liquids. When refueling, **stop the** engine and allow it to cool. **DO NOT** ***smoke*** around or near the machine. Fire or explosion could result from fuel vapors, or if fuel is spilled on a hot engine.



- **NEVER** operate the rammer in an explosive atmosphere or near combustible materials. An explosion or fire could result causing severe ***bodily harm or even death***.
- **DO NOT** ***smoke*** around or near the machine. Fire or explosion could result from fuel vapors, or if fuel is spilled on a hot engine.

- Topping-off to filler port is dangerous, as it tends to spill fuel.
- Stop the engine when leaving the rammer unattended.
- Maintain this equipment in a safe operating condition at all times.

- **ALWAYS** stop the engine before servicing, adding fuel and oil.
- **NEVER** run engine without air filter. Severe engine may occur.
- **ALWAYS** service air cleaner frequently to prevent carburetor malfunction.
- **ALWAYS** check the machine for loosened threads or bolts before starting.
- **ALWAYS** be sure the operator is familiar with proper safety precautions and operations techniques before using rammer.
- **ALWAYS** store equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of the reach of children.
- **DO NOT** operate this equipment unless all guards and safety devices are attached and in place.
- **CAUTION** must be exercised while servicing this equipment. Rotating and moving parts can cause injury if contacted.
- Keep all ***inexperienced*** and ***unauthorized*** people away from the equipment at all times.
- Unauthorized equipment modifications will void all warranties.
- **NEVER** pour or spray water over the engine.
- Test the engine ON/***OFF*** switch before operating. The purpose of this switch is to shut down the engine of the rammer.
- Refer to the ***ROBIN Engine Owner's Manual*** for engine technical questions or information recommended by Multiquip for this equipment.

TRANSPORTING

- **ALWAYS** shutdown engine before transporting.
- Tighten fuel tank cap securely and close fuel cock to prevent fuel from spilling.
- Drain fuel when transporting rammer over long distances or bad roads.
- When placing the rammer inside a truck-bed for transport, always tie-down the rammer

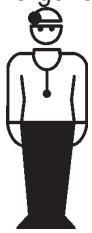
MAINTENANCE

- **NEVER** lubricate components or attempt service on a running rammer.
- **ALWAYS** allow the rammer a proper amount of time to cool before servicing.
- Keep the rammer in proper running condition.
- Fix damage to the rammer immediately and always replace broken parts.
- Dispose of hazardous waste properly. Examples of potentially hazardous waste are used motor oil, fuel and fuel filters.
- **DO NOT** use food or plastic containers to dispose of hazardous waste.

EMERGENCIES

- **ALWAYS** know the location of the nearest ***fire extinguisher*** and **first aid kit.**

- In emergencies ***always*** know the location of the nearest phone or ***keep a phone on the job site***. Also know the phone numbers of the nearest ***ambulance***, ***doctor*** and ***fire department***. This information will be invaluable in the case of an emergency.



Definition of Tamping Rammer

The Mikasa MTX-80/MTX-90 tamping rammer is a powerful compacting tool capable of applying a tremendous force in consecutive impacts to a soil surface. Its applications include soil compacting for road, embankments and reservoirs as well as backfilling for gas pipelines, water pipelines and cable installation work.

The impact force of the MTX-80/MTX-90 levels and uniformly compacts voids between soil particles to increase dry density.

Circular motion is converted to create impact force. The MTX-80/MTX-90 tamping rammer develops a powerful compacting force at the foot of the rammer. To maintain optimum performance, proper operation and service are essential.

Construction of Tamping Rammer

The Mikasa MTX-80/MTX-90 is equipped with an air cooled, four- cycle gasoline engine. Transmission of the power takes place by increasing the engine speed to engage the centrifugal clutch.

Rammer Gearbox and Spring Cylinder

The Mikasa MTX-80/MTX-90 uses an oil bath lubrication system. Always check the oil level through the oil level sight glass at the rear of the tamper foot.

Controls

Before starting the MTX-80/MTX-90 Tamping Rammer identify and understand the function of the controls.

CAUTION

Handle Operation

Before starting operation check the lifting handle to:

1. Make sure that there is no damage on the bolts.
2. Make sure that there is no crack or breakage on handle.
3. Make sure that there is no fissure on the surface. If there is any abnormality or damage, replace with new one.

For operation:

This handle is to be used to lift up the shoe part of the machine with the body laid down on the ground or truck bed.

1. Use proper lifting techniques to avoid back injury. This handle is for manual lifting only.
2. Do not use this handle as a rammer lift point. Use the lifting point on the top of the machine.
3. Do not move the rammer with the lifting handle and the front rollers more than 16 feet (5 meters).

Table 1. MTX-80/MTX-90 Rammer Specifications		
Model	MTX-80	MTX-90
Overall Height	39.37 in. (1000 mm)	39.37 in. (1000 mm)
Overall Width	14.37 in (365 mm)	14.37 in (365 mm)
Over Length	31.02 in (788 mm)	31.02 in (788 mm)
Shoe Size	13.4 x 11.2 in (340 x 285 mm)	13.4 x 11.2 in (340 x 285 mm)
Fuel Tank Capacity	3.2 qt. (3 liters)	3.2 qt. (3 liters)
Lubrication Oil Capacity	0.8 quart (0.75 liter)	0.8 quart (0.75 liter)
No. of Impacts Per Second	10.6 - 11.3	11.0 - 11.6
Impact Force	3,080 lb (13.7 kN)	3,530 lb (15.7 kN)
Impact Plate Stroke	2 - 3.15 in (50 - 80 mm)	2 - 3.15 in (50 - 80 mm)
Operating Weight	183 lbs. (83 kg)	196 lbs. (89 kg)
Speed Setting	3400-3600 rpm	3500-3700 rpm

Table 2. Engine Specifications	
Model	**Robin EH122D46530 Engine**
Type	Air-Cooled 4 Stroke, OHV, single cylinder gasoline engine
Piston Displacement	7.4 cu.in. (121 cc)
Max. Output	3.5 hp/3,600 rpm (2.6 KW)
Cooling System	Air-Cooled
Engine Oil Capacity	0.42 qt. (0.4 liter)
Fuel	Unleaded gasoline
Lubricant for Engine	Automobile Oil; Class SE or higher
Starting System	Recoil Starter
Spark Plug Type	NGK BR6ES

Specifications are general and are subject to change without notice. If exact measurements are required, equipment should be weighed and measured.

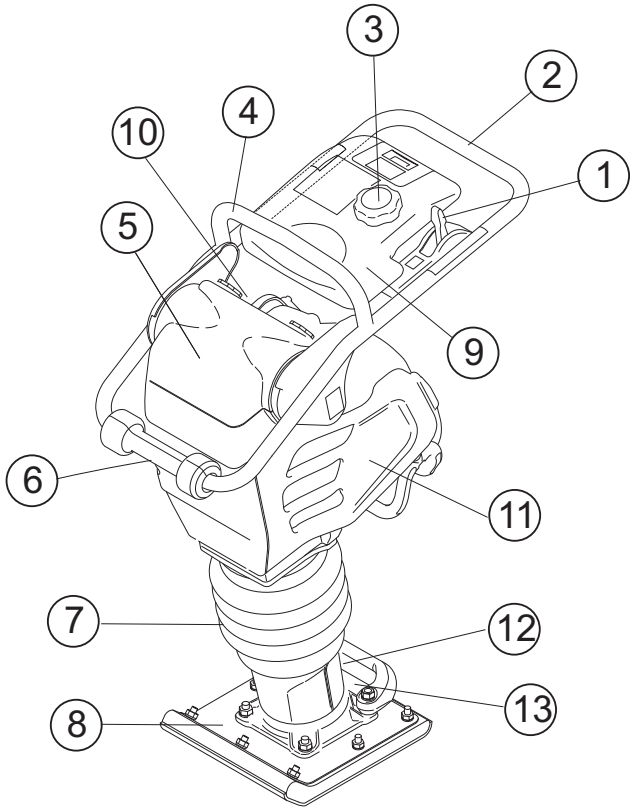


Figure 1. MTX-80/MTX-90 Rammer

Figure 1 shows the location of the controls and components for the MTX-80/MTX-90 Tamping Rammer. The functions of each control is described below:

1. **Combination (Throttle) Lever –** Used to adjust engine speed (rpm). Move lever forward ***(SLOW)*** to reduce engine speed, move lever back toward operator ***(FAST***) to increase speed. Always operate the rammer at full speed (rpm).
2. **Handle –** To operate rammer, ***GRIP*** handle assembly firmly on both sides.
3. **Fuel Tank Cap –** Remove this cap to add unleaded gasoline to the fuel tank. Make sure cap is tightened securely. **DO NOT** over fill.

WARNING

Adding fuel to the tank should be accomplished only when the engine is stopped and has had an opportunity to ***cool down.*** In the event of a fuel spill, **DO NOT** attempt to start the engine until the fuel residue has been completely wiped up, and the area surrounding the engine is dry.

4. **Hook –** Used to lift rammer for transporting.
5. **Air Cleaner Cover –** Protects the air cleaner which prevents dirt and other debris from entering the engine.
6. **Roller –** Allows rammer to be moved around easily by rolling the unit.
7. **Bellows –** Reservoir for oil bath.
8. **Foot –** Laminated wood with tempered steel plate for superior shock absorption.
9. **Fuel Tank –** Holds the fuel for the unit (up to 3.2 quarts)
10. **Muffler –** reduces the noise of the engine when running.
11. **Engine –** this unit uses a Robin EH122D46530 gasoline engine.
12. **Oil Gauge (Sight Glass) –** Indicates the level of oil in the oil bath reservoir.
13. **Drain Valve –** Open this valve to remove oil from the bellows.

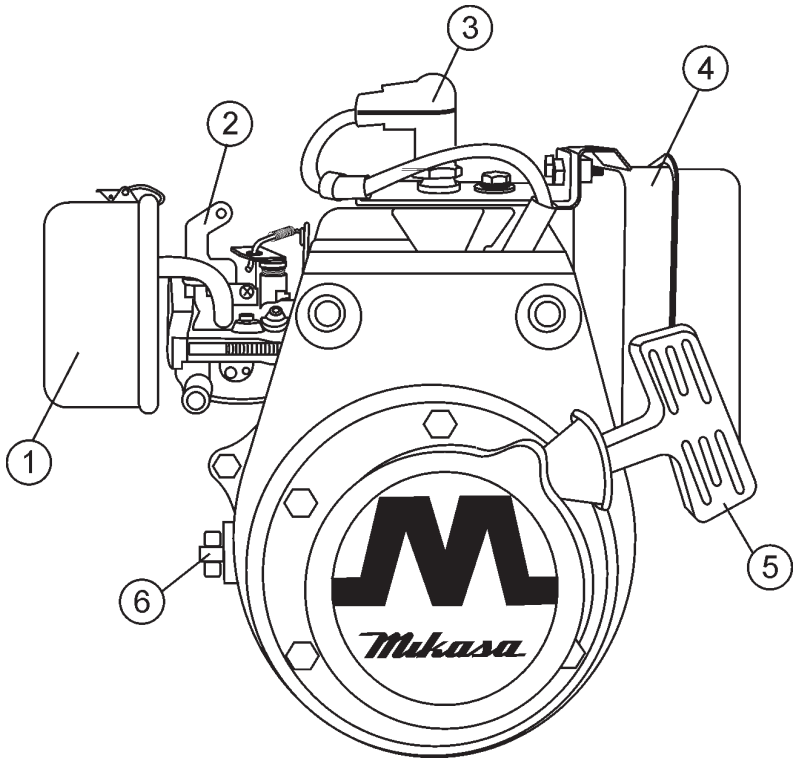


Figure 2. Engine Controls and Components (Robin EH-12-2D)

The engine (Figure 2) must be checked for proper lubrication and filled with fuel prior to operation. Refer to the manufacturer's Engine manual for instructions & details of operation and servicing.

1. **Secondary Air Cleaner –** Prevents dirt and other debris from entering the fuel system. Remove wing-nut on top of air filter cannister to gain access to filter element.
2. **Choke Lever –** Used when starting the engine. Normally used in cold weather conditions. In cold weather turn the choke lever to the fully closed position, in warm weather set choke lever half way or completely open.
3. **Spark Plug –** Provides spark to the ignition system. Set spark plug gap to 0.024 - 0.028 inch (0.6 - 0.7 mm). Clean spark plug once a week.

Operating the engine without an air filter, with a damaged air filter, or a filter in need of replacement will allow dirt to enter the engine, causing rapid engine wear.

4. **Muffler –** Used to reduce noise and emissions.
5. **Recoil Starter (pull rope) –** Manual-starting method. Pull the starter grip until resistance is felt, then pull briskly and smoothly.
6. **Engine ON/OFF Switch –** Controls the starting and stopping of the engine. Switch must be in the "ON" position when starting the engine.

WARNING

Engine components can generate extreme heat. To prevent burns, **DO NOT** touch these areas while the engine is running or immediately after operating. **NEVER** operate the engine with the muffler removed.

This section is intended to assist the operator with the initial start-up of the MTX-80/MTX-90 Tamping Rammer. It extremely important that this section be read carefully before attempting to operate the rammer.

DO NOT use your rammer until this section is thoroughly understood.

⚠ CAUTION

Failure to understand the operation of the MTX-80/MTX-90 Tamping Rammer could result in severe damage to the unit or personal injury.

Rammer Crankcase and Spring Cylinder Oil Bath

This unit uses an oil bath lubrication system. Perform the following:

1. Check the oil level through the oil level sight glass (Figure 3) at the rear of the tamper foot.

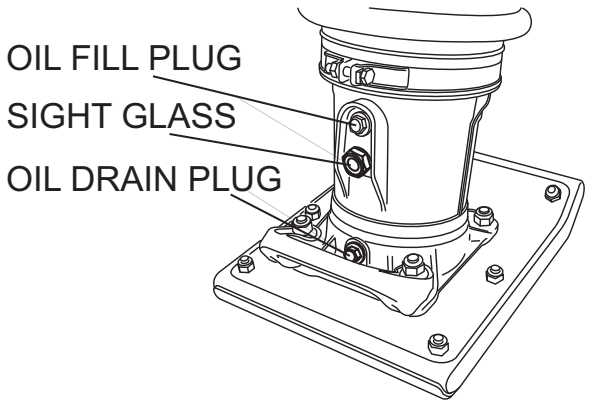


Figure 3. Foot Housing Sight Glass

2. If oil is not visible, add 10W-30 SE, SF or higher grade motor oil into the oil fill plug opening (Figure 3). The bath contains approximately 1.7 pints (800 cc.)

The oil level should be kept at the half way point of the sight glass.

Engine

1. Fill the fuel tank (Figure 4) with unleaded gasoline. At the same time, check the engine oil and make it a habit to replenish it often (Figure 5).

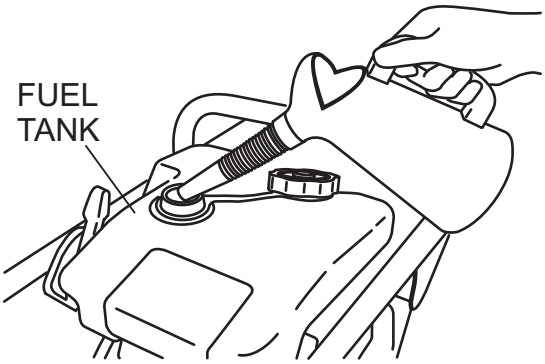


Figure 4. Fuel Tank

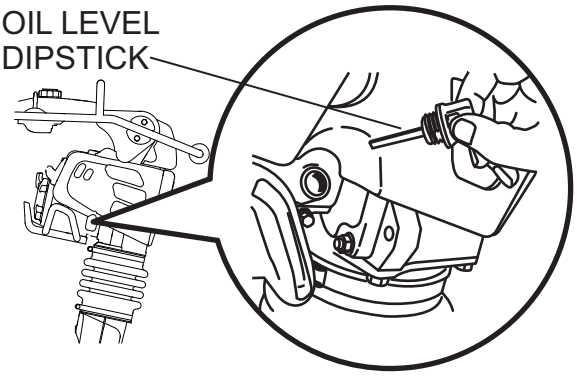


Figure 5. Engine Oil Dipstick

2. Low levels of oil may result in engine seizure due to high levels of consumption during operations.
3. Check the engine oil level and if the engine oil level is low, it should be refilled. Use the proper motor oil as suggested in the Table 3 below.

Table 3 Motor Oil Grade

Season or Temperature	Grade of motor oil (higher than MS class)
Spring, Summer or Autumn +120° F to +15° F	SAE 30
Winter +40° F to +15° F	SAE 30
Below +15° F	SAE 10W-30

Inspection

1. Check all nuts, bolts fasteners for tightness. Retighten as necessary.
2. Clean any dirt from the recoil starter and foot pedestal. Wipe the entire unit clean before operating.
3. Replace any missing or damaged Safety Operation decals.
4. Adjust height of handle. Adjust handle by loosening nuts and moving handle to suit operation. Retighten nuts.

Initial Start-up

When starting the MTX-80/MTX-90 Tamping Rammer perform the following:

1. Slide the throttle lever from the stop to the idle position ( ) (Figure 6). This opens the fuel cock and the engine electrical circuit is turned on automatically.

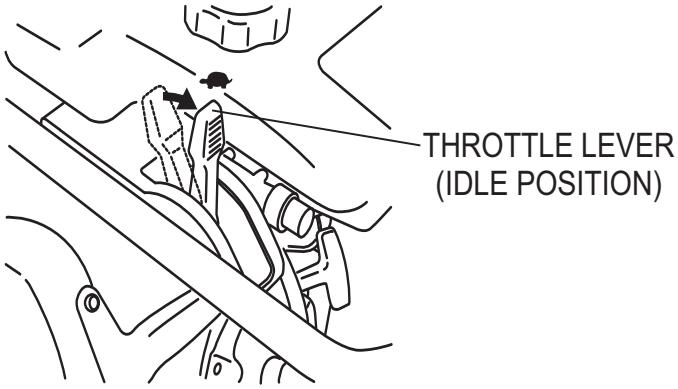


Figure 6. Throttle Lever (Idle {Position)

2. Place the choke lever to the closed position (Figure 7). When the weather is cold, close the choke all the way. When it is hot, or if the engine is hot, open the choke a little or leave it fully open.

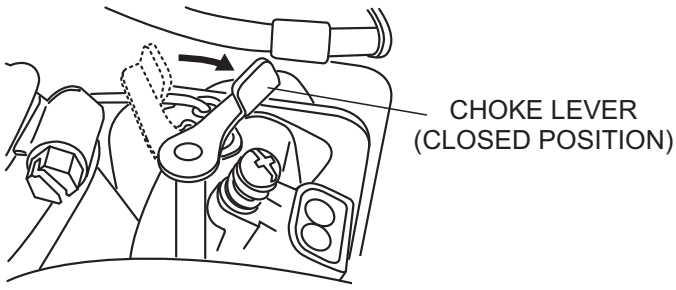


Figure 7. Choke Lever

4. Grip the starter rope handle (Figure 8) and pull it until you feel a slight resistance. Then pull sharply and quickly. Return the handle to the starter case before releasing.

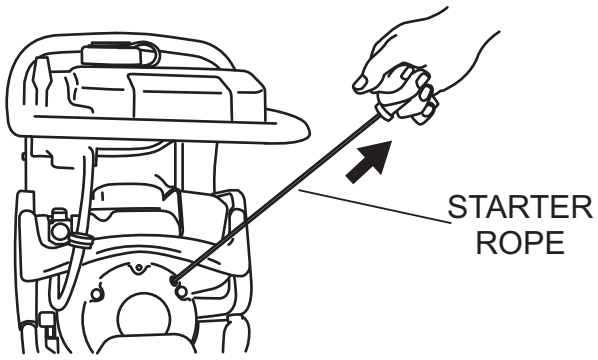


Figure 8. Recoil Starter

5. If engine fails to start, move the choke lever to the half open position to avoid flooding.
6. Repeat steps 1 thru 4.
7. If the engine does not start after repeated attempts, check the spark plug for excess fuel. Clean and replace the spark plug as needed.

Operation

1. To start the rammer tamping action, move the throttle lever (Figure 9) ***quickly*** from **IDLE** to the **START (🐇)** position. **DO NOT** move the throttle lever slowly as this may cause damage to the clutch or spring.

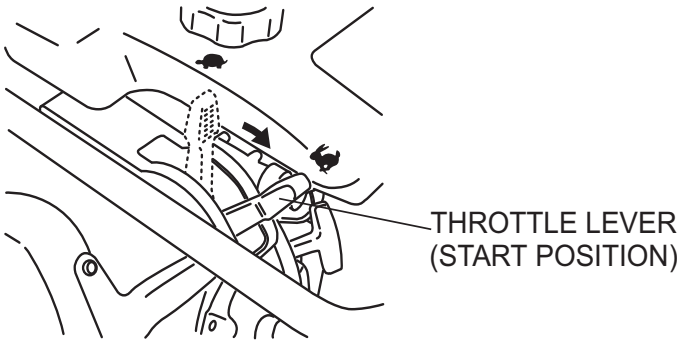


Figure 9. Throttle Lever (Start Position)

⚠ CAUTION

Make sure that the throttle lever is moved to the **FULL START** position. Operating the rammer at less than full speeds can result in damage to the clutch springs or foot.

2. The MTX-80/MTX-90 tamping rammer is designed to run at 3,600/3700 rpm. At optimum rpm the foot hits at the rate between 590 ~ 695 impacts per minute. Increasing throttle speed past factory set rpm does not increase impacts and may damage unit. The MTX-80/MTX-90 is designed to advance while tamping. For faster advance, pull back slightly on the handle so that rear of foot contacts soil first.
3. To stop the tamping action, move throttle lever quickly from **START** to **IDLE** position (Figure 10).

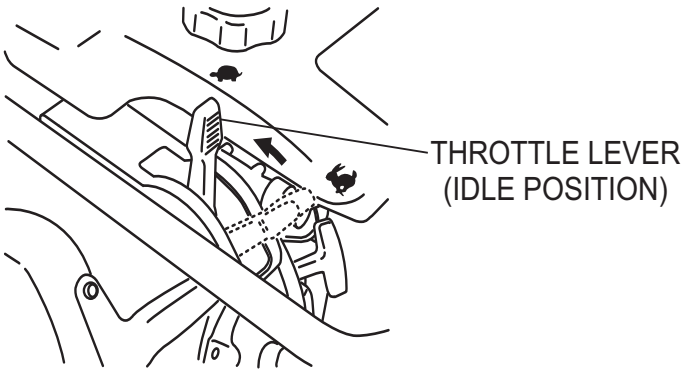


Figure 10. Throttle Lever (Idle Position)

Stopping The Engine

Normal Shutdown

1. Move throttle lever quickly from the **START** to **IDLE** position (Figure 10) and run the engine for three minutes at low speed. After the engine ***cools***, move the throttle lever to the **STOP** position (Figure 11). The engine will stop and the fuel cock is automatically closed.

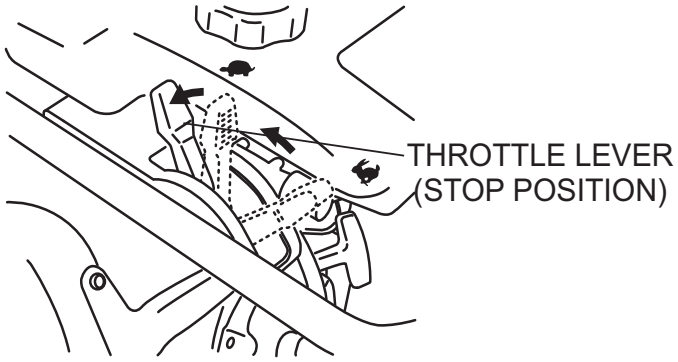


Figure 11. Throttle Lever (Stop Position)

2. If the engine does not stop due to a problem with the switch or the like, move the machine to a safe location and hold the throttle lever in the stop position. Let the machine run on idle and the machine will stop after a few minutes.

Maintenance

Perform the scheduled maintenance procedures as indicated:

DAILY

- Thoroughly remove dirt and oil from the engine and control area.
- Clean or replace the air cleaner elements as necessary. Check and retighten all fasteners as necessary.
- Check the spring box and bellows for oil leaks. Repair or replace as needed.

EVERY 50 HOURS

- Remove the fuel filter cap and clean the inside of the fuel tank (Figure 12).

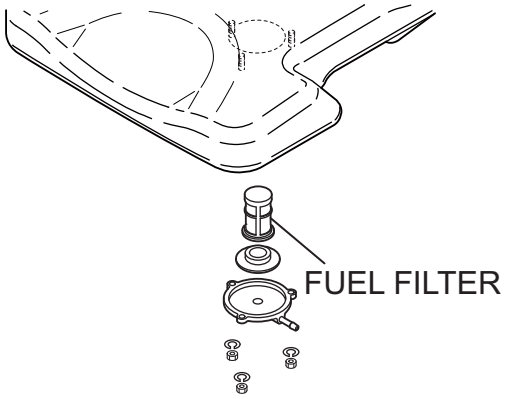


Figure 12. Fuel Filter

- Remove and clean the spark plug, then adjust the spark gap to 0.024~0.028 inch (0.6~0.7 mm).

EVERY 80 to 100 HOURS

- Remove the air cleaner cover. Loosen and remove the 2 screws that hold the cover to the air cleaner assembly. If the primary element (Figure 13) is dirty, wash it with gasoline or kerosene. Then dip it in engine oil (SAE10W-30) and wring the element so that 25 to 30 cc of engine oil remains on the element.

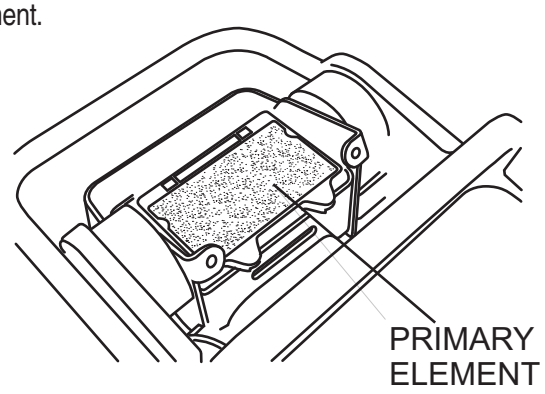


Figure 13. Air Cleaner Primary Element

EVERY 200 HOURS

- Remove the oil drain plug on foot housing (Figure 14) and drain the oil. Refill with approximately 1.7 pt. (800 cc.) of 10W-30 SE, SF or higher grade motor oil. Oil should be midway in sight glass. Break in oil should be changed after first 50 hours.

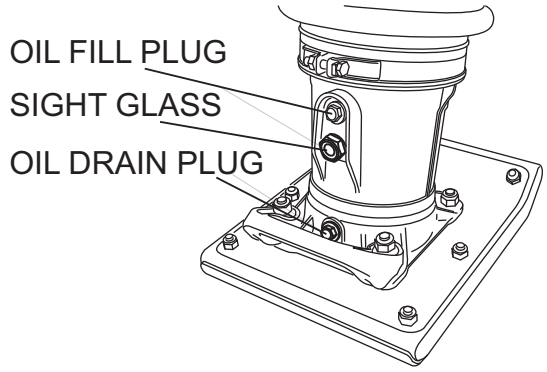


Figure 14. Oil Drain Plug

EVERY 2YEARS

- Replace the fuel line every 2 years even if there is no visible damage.

Long Term Storage

- Slide the throttle lever to the STOP position.
- Drain any fuel including in the fuel hose.
- Replace lubrication oil and apply grease to lubrication points.
- Cover the air intake on the air cleaner and the exhaust outlet on the muffler.
- Store unit indoors covered with plastic sheet in moisture free and dust free location out of direct sunlight.

TABLE 4. ENGINE TROUBLESHOOTING		
SYMPTOM	**POSSIBLE PROBLEM**	**SOLUTION**
Difficult to start		
Fuel is available but spark plug will not ignite. (Power available at high tension cable).	Ignition plug being bridge?	Check ignition system.
	Carbon deposit at ignition?	Clean or replace ignition.
	Short circuit due to defective insulators?	Replace insulators.
	Improper spark gap?	Set spark plug gap to the correct gap.
Fuel is available but spark plug will not ignite. (Power **NOT** available at high tension cable).	Short circuit at stop switch?	Check stop switch circuit. Replace stop switch if defective.
	Ignition coil defective?	Replace ignition coil.
Fuel is available and spark plug ignites (compression **normal)**.	Muffler clogged with carbon deposits?	Clean or replace muffler.
	Fuel in use inadequate (water, dust)?	Flush fuel sytem and replace with fresh fuel.
	Air Cleaner clogged?	Clean or replace air cleaner.
Fuel is available and spark plug ignites (compression**low**).	Defective cylinder head gasket?	Tighten cylinder head bolts or replace head gasket.
	Cylinder worn?	Replace cylinder.
	Spark plug loose?	Tighen spark plug.
Low compression.	Incorrect valve adjustment?	Check and adjust valves.
Operation not satisfactory		
Not enough power available (compression normal, no miss-firing).	Air cleaner clogged?	Clean or replace air cleaner.
	Air in fuel line?	Bleed (remove air) from fuel line.
	Carbon deposits in cylinder?	Clean or replace cylinder
Not enough power available (compression normal, miss-firing).	Ignition coil defective?	Flush fuel sytem and replace with fresh fuel.
	Ignition plug often shorts?	Replace ignition wires, clean ignition.
	Fuel in use inadequate (water, dust)?	Flush fuel sytem and replace with fresh fuel.
Engine overheats.	Excessive carbon depostion in combustion chamber?	Clean or replace crankcase.
	Exhaust or muffler clogged with carbon.	Clean or replace muffler.
	Spark plug heat value incorrect?	Replace spark plug with correct type spark plug.
Engine high speed incorrect.	Incorrect engine RPM?	Check and adjust engine RPM to 3400-3600 RPM.

TABLE 4. ENGINE TROUBLESHOOTING (continued		
SYMPTOM	**POSSIBLE PROBLEM**	**SOLUTION**
Operation not satisfactory		
Rotational speed fluctuates.	Governor adjustment improper?	Adjust governor to correct lever.
	Governor spring defective?	Clean or replace ignition.
	Fuel flow erratic?	Check fuel line.
	Air taken in through suction line?	Check suction line.
Recoil starter not working properly.	Dust in rotating part?	Clean recoil starter assembly.
	Spring spring failure?	Replace sprial spring.

TABLE 5. RAMMER TROUBLESHOOTING		
SYMPTOM	**POSSIBLE PROBLEM**	**SOLUTION**
Engine runs but rammer jumps erratically or not at all..	Operating speed of throttle lever is incorrectly set?	Set throttle lever to correct position.
	Oil in excess?	Drain excess oil. Bring to correct level.
	Clutch slips?	Replace or adjust clutch.
	Spring Failure?	Replace sprial spring.
	Speed of engine improper?	Adjust engine speed to correct operating RPM setting.
	Soil over-compacted?	Shut-down machine and test soil.

MTX-80/MTX-90—EXPLANATION OF PARTS SECTION REMARKS

The following section explains the different symbols and remarks used in the Parts section of this manual. Use the help numbers found on the back page of the manual if there are any questions.

The contents and part numbers listed in the parts section are subject to change ***without notice***. Multiquip does not guarantee the availibility of the parts listed.

Sample Parts List:

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	12345	BOLT	1	INCLUDES ITEMS W/*
2*		WASHER, 1/4 IN.		NOT SOLD SEPARATELY
2*	12347	WASHER, 3/8 IN.	1	MQ-45T ONLY
3	12348	HOSE	A/R	MAKE LOCALLY
4	12349	BEARING	1	S/N 2345B AND ABOVE

NO. Column

Unique Symbols - All items with same unique symbol (*, #, +, %, or >) in the number column belong to the same assembly or kit, which is indicated by a note in the "Remarks" column.

Duplicate Item Numbers - Duplicate numbers indicate multiple part numbers are in effect for the same general item, such as different size saw blade guards in use or a part that has been updated on newer versions of the same machine.

When ordering a part that has more than one item number listed, check the remarks column for help in determining the proper part to order.

PART NO. Column

Numbers Used - Part numbers can be indicated by a number, a blank entry, or TBD.

TBD (To Be Determined) is generally used to show a part that has not been assigned a formal part number at time of publication.

A blank entry generally indicates that the item is not sold separately or is not sold by Multiquip. Other entries will be clarified in the "Remarks" Column.

QTY. Column

Numbers Used - Item quantity can be indicated by a number, a blank entry, or A/R.

A/R (As Required) is generally used for hoses or other parts that are sold in bulk and cut to length.

A blank entry generally indicates that the item is not sold separately. Other entries will be clarified in the "Remarks" Column.

REMARKS Column

Some of the most common notes found in the "Remarks" Column are listed below. Other additional notes needed to describe the item can also be shown.

Assembly/Kit - All items on the parts list with the same unique symbol will be included when this item is purchased.

Indicated by:
"INCLUDES ITEMS W/(unique symbol)"

Serial Number Break - Used to list an effective serial number range where a particular part is used.

Indicated by:
"S/N XXXXX AND BELOW"
"S/N XXXX AND ABOVE"
"S/N XXXX TO S/N XXX"

Specific Model Number Use - Indicates that the part is used only with the specific model number or model number variant listed. It can also be used to show a part is NOT used on a specific model or model number variant.

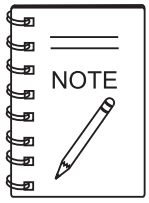
Indicated by:
"XXXXX ONLY"
"NOT USED ON XXXX"

"Make/Obtain Locally" - Indicates that the part can be purchased at any hardware shop or made out of available items. Examples include battery cables, shims, and certain washers and nuts.

"Not Sold Separately" - Indicates that an item cannot be purchased as a separate item and is either part of an assembly/kit that can be purchased, or is not available for sale through Multiquip.

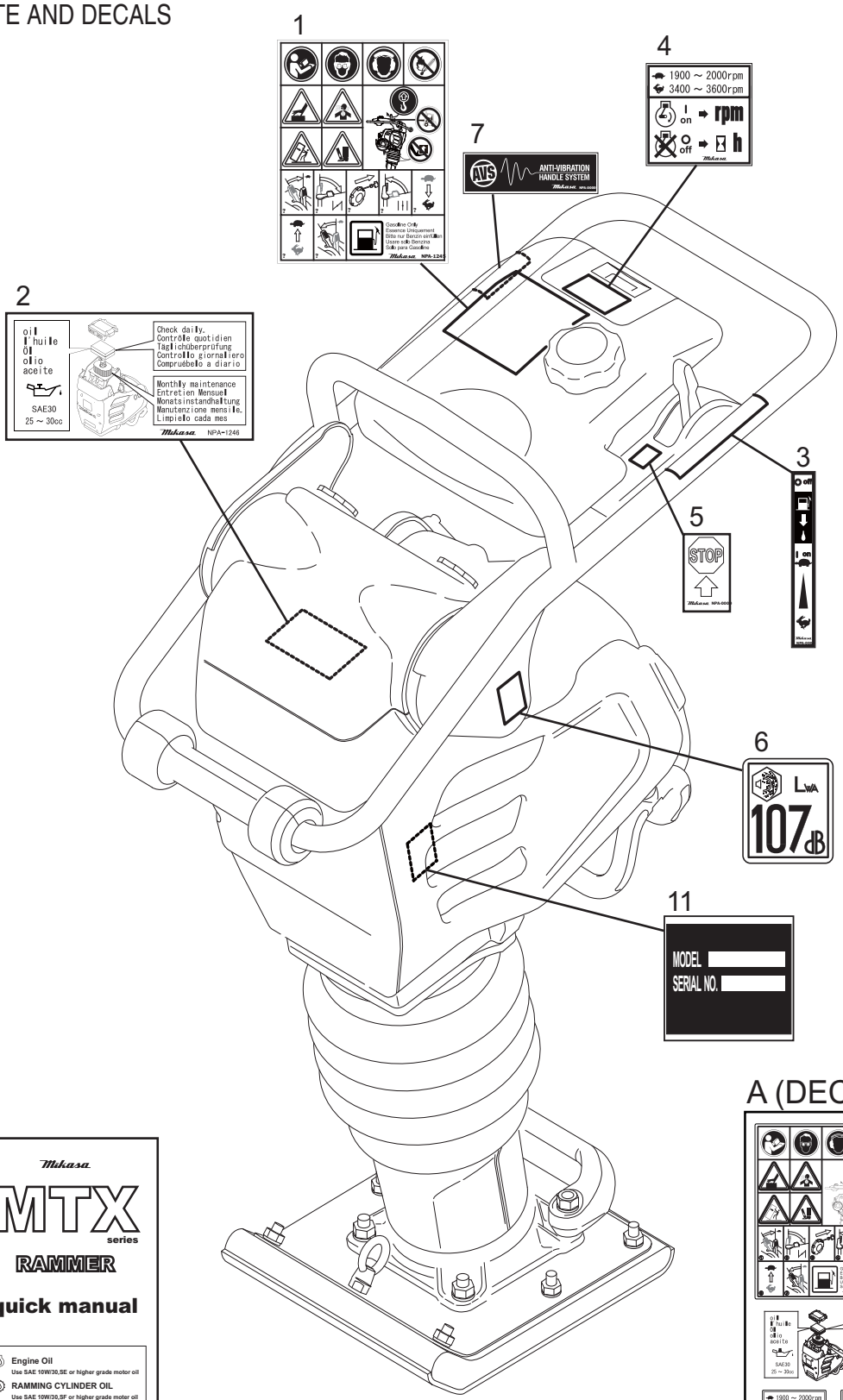
MTX-80/MTX-90 RAMMER 1 TO 3 UNITS WITH ROBIN EH122D46530 ENGINE

Qty.	P/N	Description
1	956100063	THROTTLE WIRE
3	366010070	PRIMARY ELEMENT, AIR CLEANER
3	366010080	SECONDARY ELEMENT, AIR CLEANER
1	366900020	CAP, FUEL TANK W/ STRAP
2	26365012A3	FILTER, IN-LINE FUEL
3	0650140580	SPARK PLUG
1	959300770	STRAINER, FUEL TANK
1	2825011118	ROPE, RECOIL STARTER



Part numbers on this Suggested Spare Parts List may supersede/replace the P/N shown in the text pages of this book.

NAME PLATE AND DECALS



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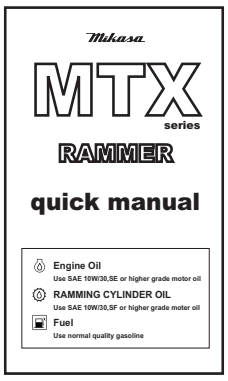
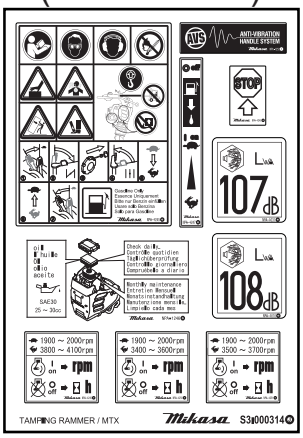


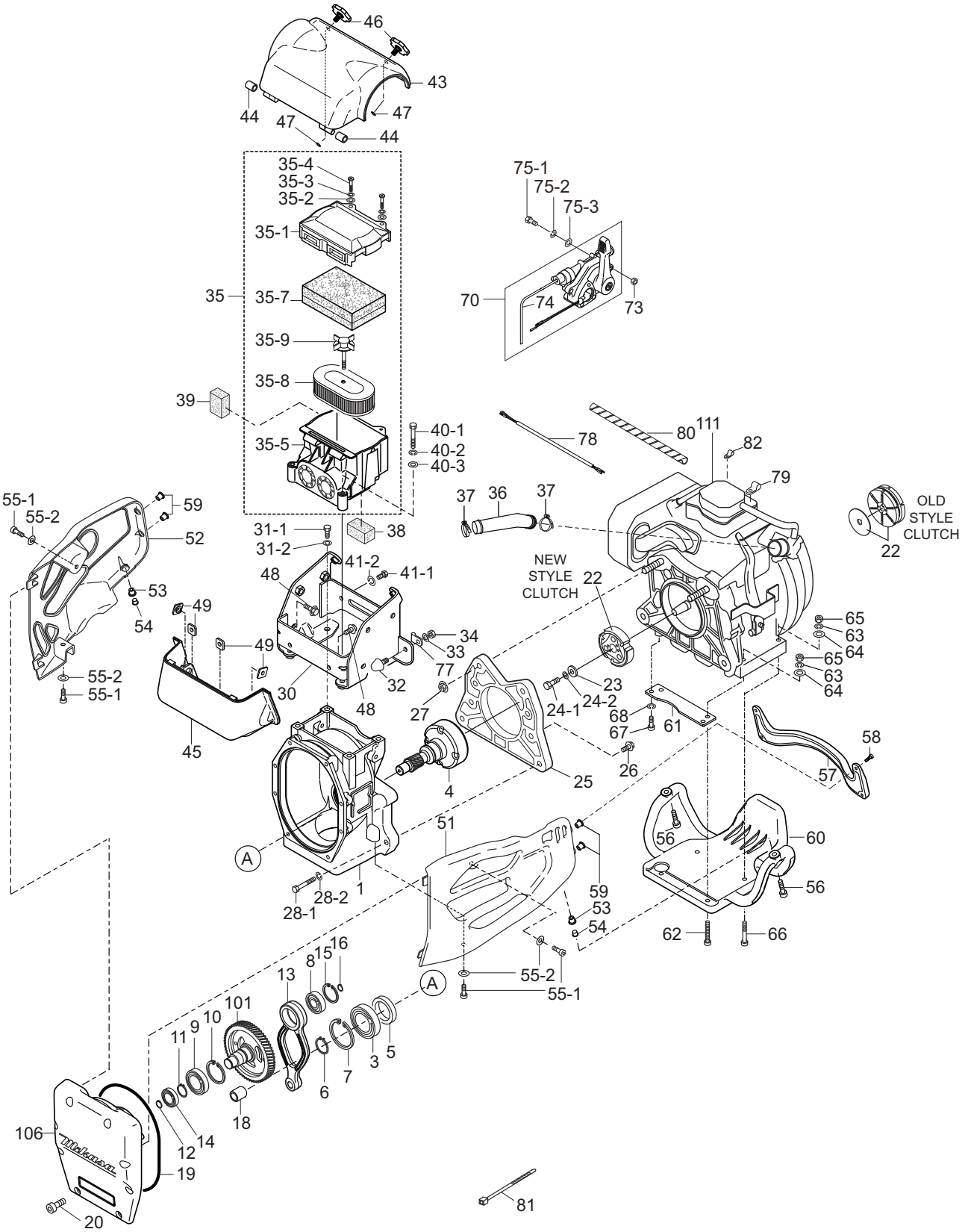
A (DECAL SET)



NAME PLATE AND DECALS

NO	PART NO	PART NAME	QTY.	REMARKS
A	920900040	DECAL SET	1	INCLUDES ITEMS W/ #
1#		DECAL: OPERATION	1	
2#		DECAL: AIR CLEANER	1	
3#		DECAL: LEVER OPERATION	1	
4#		DECAL: MAX SPEED	1	
5#		DECAL: MACHINE STOP	1	
6#		DECAL: EC NOISE REQ	1	
7#		DECAL: ANTI-VIB HANDLE	1	
8	920212540	QUICK MANUAL	1	
11		DECAL: NAMEPLATE	1	CONTACT MQ PARTS DEPT W/ SERIAL NO.

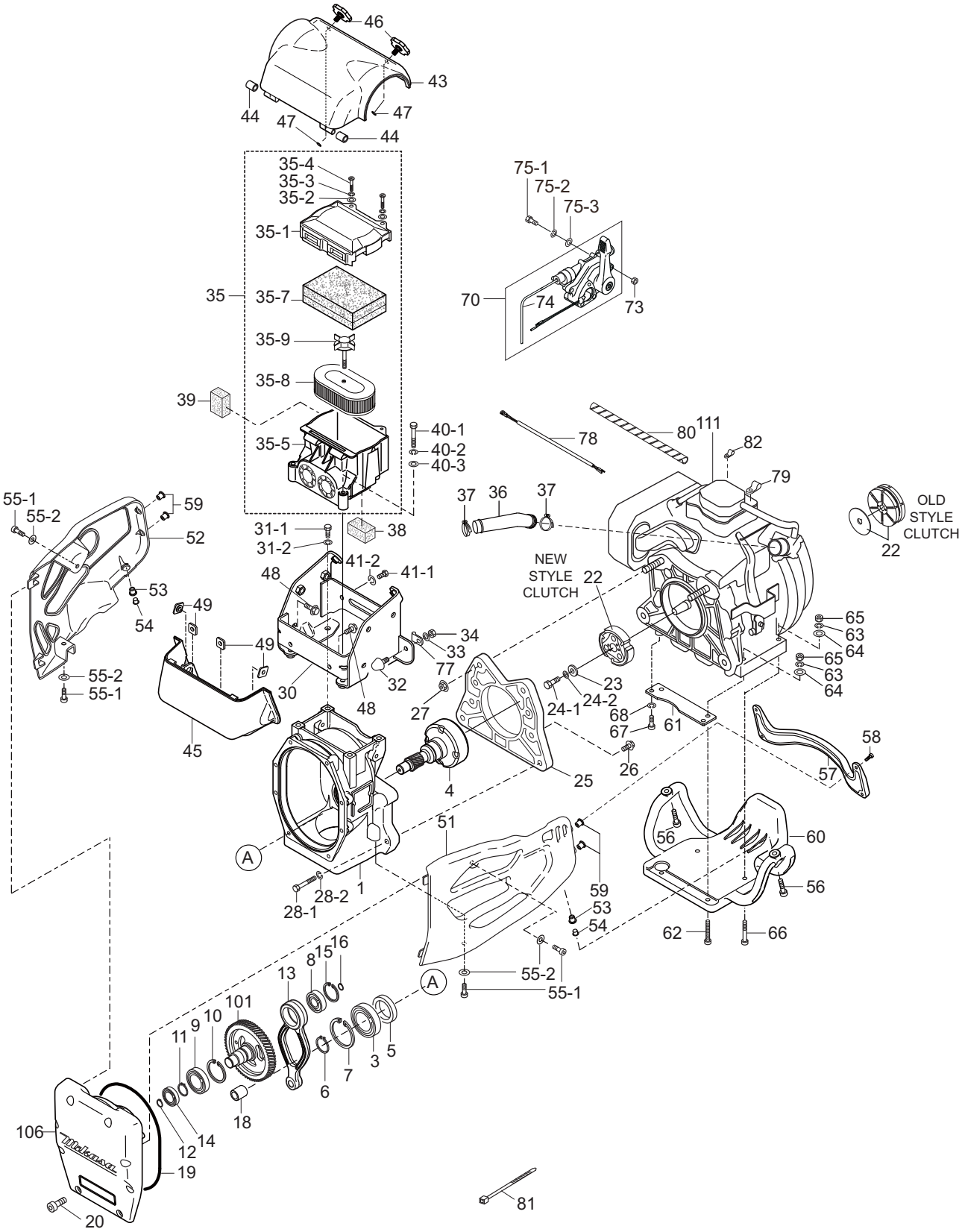
CRANKCASE AND ENGINE ASSY.



CRANKCASE AND ENGINE ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	366118940	CRANK CASE	1	
3	041006007	BEARING 6007Z	1	
4	367345180	PINION, DRUM	1	
5	060404010	OIL SEAL TC-40528	1	
6	080200350	STOP RING S-35	1	
7	080100620	STOP RING R-62	1	
8	040006207	BEARING 6207	1	
9	040006305	BEARING 6305	1	
10	080100720	STOP RING R-72	1	
11	080200350	STOP RING S-35	1	
12	080200250	STOP RING S-25	1	
13	366345230	CONNECTING ROD	1	
14	040006304	BEARING 6304	1	
15	080100520	STOP RING R-52	1	
16	080200200	STOP RING S-20	1	
18	047940060	NEEDLE BEARING FJ-1816	1	
19	050710080	O-RING AS568-267	1	
20	001520825	SOCKET HEAD BOLT 8X25 T	8	
22	366346210	CLUTCH ASSY	1	MTX80: S/N S-3939 AND BELOW
				MTX90: S/N S-1298 AND BELOW
22	366348550	CLUTCH ASSY	1	MTX80: S/N S-3940 AND ABOVE
				MTX90: S/N S-1299 AND ABOVE
23	952401450	WASHER 8.5X22X3	1	
24-1	001220825	BOLT 8X25 T	1	
24-2	030208200	WASHER, LOCK M8	1	
25	367217260	FLANGE, ENGINE	1	
26	001710830	FLANGE BOLT 8X30	4	
27	022611010	FLANGE NUT M10 H	2	
28-1	001221054	BOLT 10X70 T	2	
28-2	030210250	WASHER, LOCK M10	2	
30	366346280	BRACKET, SHOCK ABSORBER	1	
31-1	001211030	BOLT 10X30 H	4	
31-2	030210250	WASHER, LOCK M10	4	
32	939010270	STOPPER RUBBER (70)	1	
33	030208200	WASHER, LOCK M8	1	
34	020308060	NUT M8	1	
35	366900010	AIR CLEANER ASSY	1	INCLUDES ITEMS W/ #
35-1#	366010010	AIR CLEANER COVER	1	
35-2#	366010020	WASHER, FLAT M6	2	
35-3#	366010030	WASHER, LOCK M6	2	
35-4#	366010040	COIN BOLT M6	2	
35-5#	366010050	BASE CP, AIR CLEANER	1	
35-7#	366010070	PRIMARY ELEMENT CP	1	
35-8#	366010080	SECONDARY ELEMENT	1	
35-9#	362030040	GRIP BOLT CP, AIR CLEANER	1	
36	367217460	PIPE, INTAKE	1	
37	954407682	CYCLONE CLAMP (CY-1) 38	2	
38	366460160	SEALING FORM, UNDER	1	
39	366460150	SEALING FORM, SIDE	1	

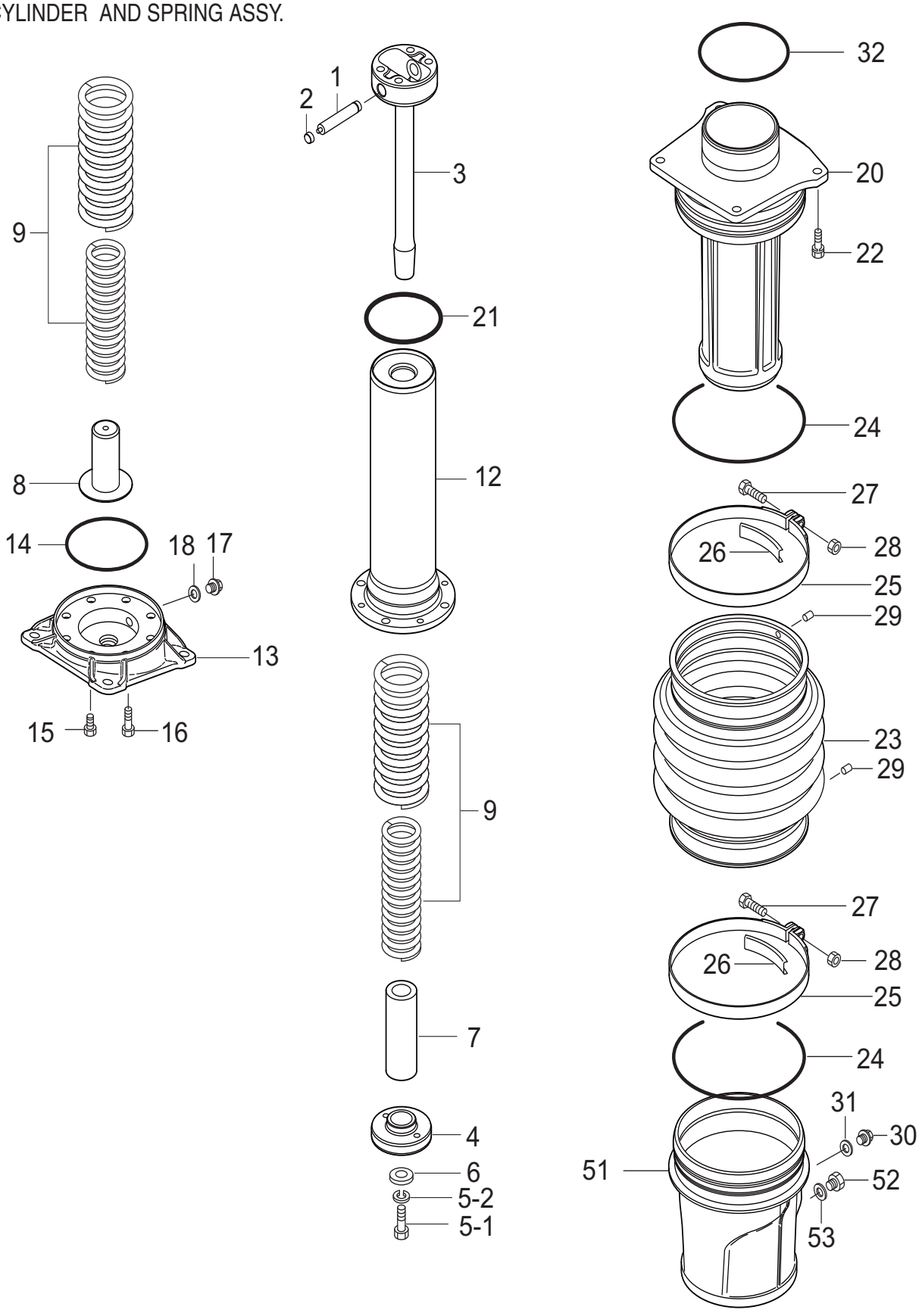
CRANKCASE AND ENGINE ASSY.



CRANKCASE AND ENGINE ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
40-1	001220851	BOLT 8X55 T	2	
40-2	030208200	WASHER, LOCK M8	2	
40-3	031108160	WASHER, FLAT M8	2	
41-1	001210815	BOLT 8X15 H	2	
41-2	030208200	WASHER, LOCK M8	2	
43	366217340	COVER, CLEANER ASSY (UPPER)	1	
44	366460140	RUBBER BUSH (10X16X17)	2	
45	366217350	COVER, CLEANER ASSY (UNDER)	1	
46	366345980	KNOB, CLEANER COVER	2	
47	050200060	O-RING P6	2	
48	009110040	FLANGE BOLT 8X20	4	
49	959407670	SQUARE NUT M8	4	
51	367118990	GUARD, LINK	1	
52	367119000	GUARD, MUFFLER	1	
53	022910260	WELL NUT M8	2	
54	366460170	FLANGE COLLAR 8	2	
55-1	001520820	SOCKET HEAD BOLT 8X20 T	4	
55-2	031108160	WASHER, FLAT M8	4	
56	009110038	SOCKET HEAD BOLT 8X30 ZN	2	
57	367217490	EX BAR	1	
58	009110039	SOCKET HEAD BOLT 6X25 ZN	4	
59	022910250	WELL NUT M6	4	
60	367119010	GUARD, ENGINE	1	
61	367346290	SUPPORT, ENGINE	1	
62	009110042	S.H.BOLT8X45 WHOLE THREAD	2	
63	030208200	WASHER, LOCK M8	4	
64	031108160	WASHER, FLAT M8	4	
65	020308060	NUT M8	4	
66	009110043	SOCKET HEAD BOLT 8X40 ZN	2	
67	001520820	SOCKET HEAD BOLT 8X20 T	2	
68	030208200	WASHER, LOCK M8	2	
70	366900042	COMBINATION LEVER ASSY W/ WIRE	1	..... INCLUDES ITEMS W/@
74@	956100063	THROTTLE WIRE	1	
75-1	001220620	BOLT 6X20 T	2	
75-2	030206150	WASHER, LOCK M6	2	
75-3	031106100	WASHER, FLAT M6	2	
76	020306050	NUT M6	2	
77	959006120	CLIP (TCP2-10509B)	1	
78	367460120	WIRE HARNESS	1	
79	2067550101	CLAMP COMPL	1	
80	959021810	SPIRAL TUBE KEP6/L=500	1	
81	454010020	CLAMP TC-100	5	
82	954010280	CLIP AB-4N	1	
101	367345200	CRANK GEAR	1	
106	366010120	FRONT COVER	1	..... FOR MTX-80, S/N S-3939 AND BELOW
106	366010121	FRONT COVER	1	..... FOR MTX-80, S/N S-3940 AND ABOVE
106	366010130	FRONT COVER	1	..... FOR MTX-90, S/N S-1298 AND BELOW
106	366010131	FRONT COVER	1	..... FOR MTX-90, S/N S-1299 AND ABOVE
111	911211217	ENGINE ASSY, EH122D46530	1	

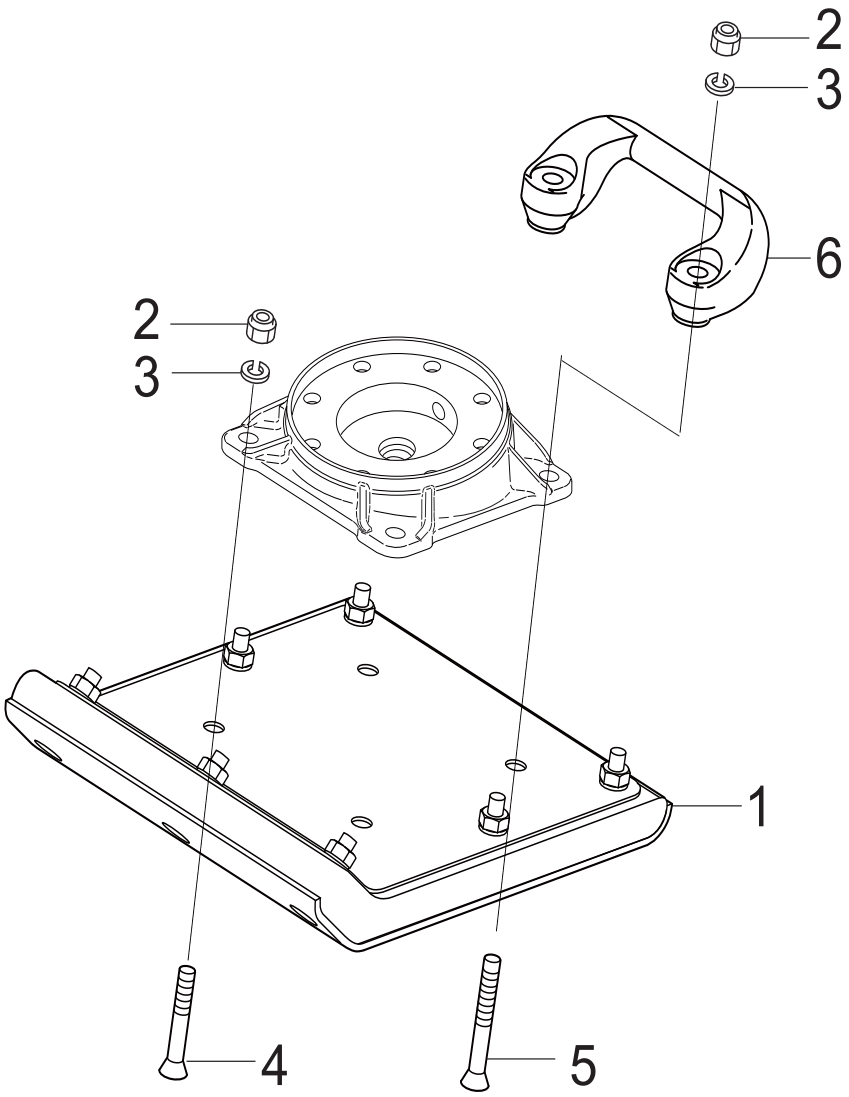
GUIDE CYLINDER AND SPRING ASSY.



GUIDE CYLINDER AND SPRING ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	366460100	PISTON PIN	1	
2	366459910	PLUG, PISTON PIN	2	
3	366346000	PISTON ROD	1	
4	371459690	PISTON END	1	
5-1	001221230	BOLT 12X30 T	1	
5-2	030212300	WASHER, LOCK M12	1	
6	952404790	WASHER 13306	1	
7	355447260	STOPPER, LOWER	1	
8	366459900	STOPPER, BOTTOM	1	
9	366459730	MAIN SPRING	2	
12	366345990	SPRING CYLINDER	1	
13	366217210	FOOT PLATE 12	1	
14	050100900	O-RING G-90	1	
15	001521020	SOCKET HEAD BOLT 10X20 T	4	
16	001521040	SOCKET HEAD BOLT 10X40 T	4	
17	953405270	PLUG 1/4X14 13L	1	
18	953405260	PACKING 1/4 (CU)	1	
20	366217440	GUIDE CYLINDER	1	FOR MTX-80
20	367217450	GUIDE CYLINDER	1	FOR MTX-90
21	050710070	O-RING AS568-344	1	
22	002211035	BOLT 10X35 H, SW	4	FOR MTX-80
22	002211045	BOLT 10X45 H, SW	4	FOR MTX-90
23	354010010	BELLOWS, ORANGE	1	
24	050931500	O-RING JASO3150	2	
25	354336352	BELLOWS CLAMP(1.6T)171D	2	
26	354442340	BAND GUIDE, BELLOWS	2	
27	001220840	BOLT 8X40 T	2	
28	020308060	NUT M8	2	
29	354446170	PIN 6D-8.5L	2	
30	953405270	PLUG 1/4X14 13L	1	
31	953405260	PACKING 1/4 (CU)	1	
32	050200950	O-RING P-95	1	
51	366118590	PROTECTION SLEEVE	1	
52	366460300	OIL GAUGE ASSY	1	
53	953404670	COPPER PACKING 17X25.5X1	1	

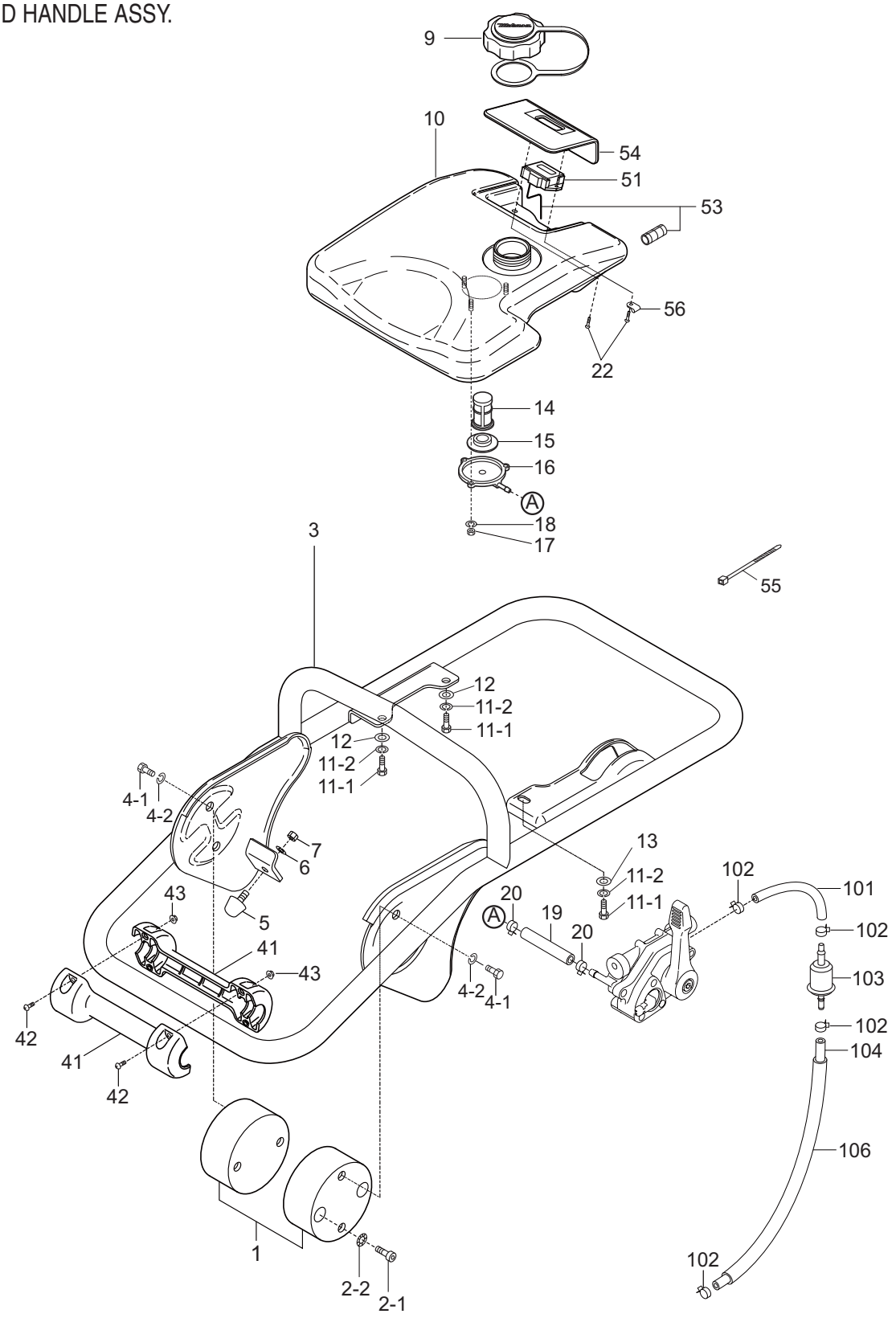
FOOT ASSY.



FOOT ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	366910020	FOOT ASSY 285	1	
2	022711214	NYLON NUT M12	4	
3	030212300	WASHER, LOCK M12	4	
4	009110034	BOLT, SQUARE NECK 12X65	2	
5	009110035	BOLT, SQUARE NECK 12X95	2	
6	363343390	GRIP HANDLEBAR	1	

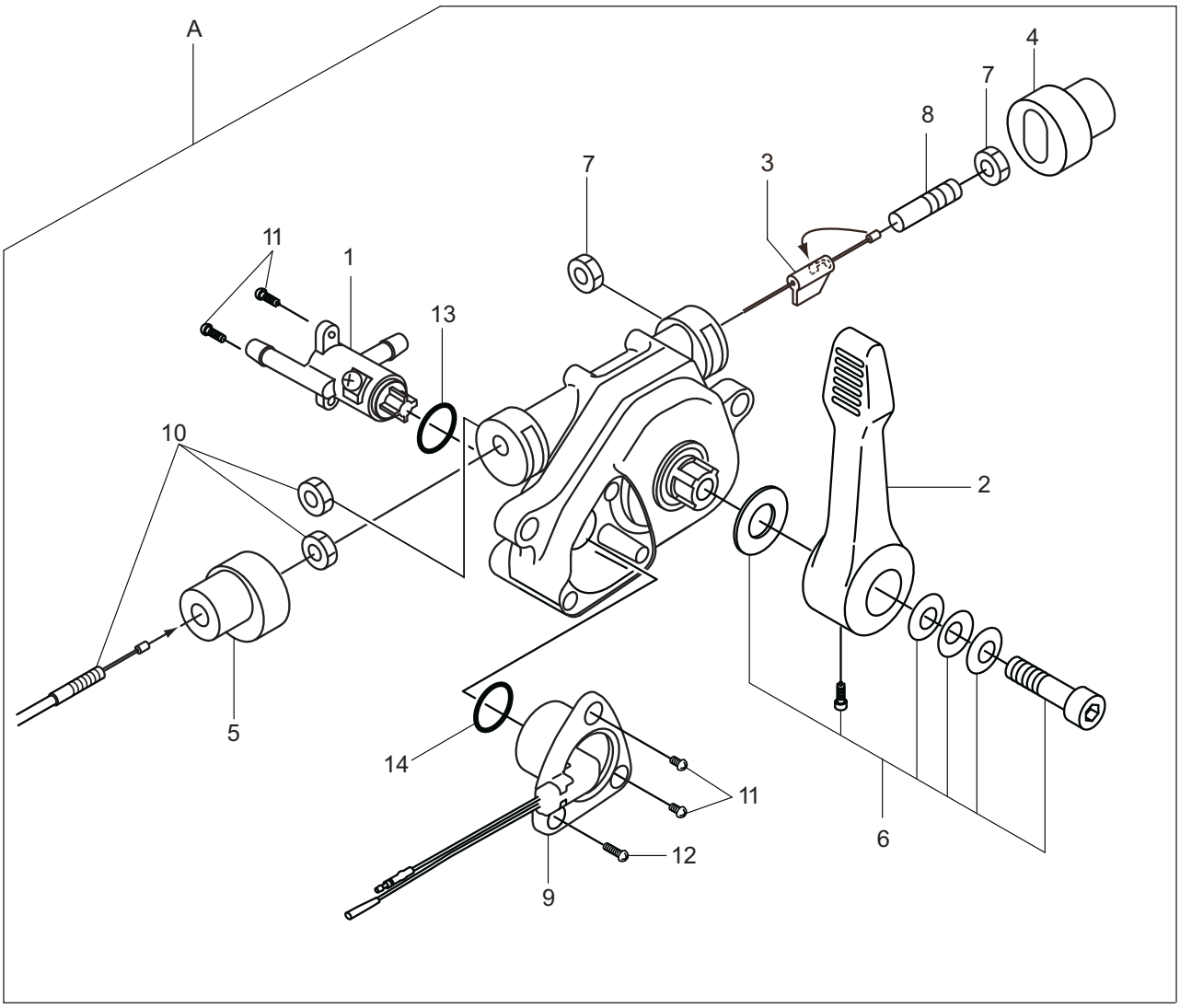
TANK AND HANDLE ASSY.



TANK AND HANDLE ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	366346270	SHOCK ABSORBER W/PIN	2	
2-1	001521020	SOCKET HEAD BOLT 10X20 T	4	
2-2	033121009	TOOTHED LOCK WASHER B M10	4	
3	367119050	HANDLE	1	
4-1	001211020	BOLT 10X20 H	4	
4-2	030210250	WASHER, LOCK M10	4	
5	939010270	STOPPER RUBBER (70)	1	
6	030208200	WASHER, LOCK M8	1	
7	020308060	NUT M8	1	
9	366900020	CAP ASSY, FUEL TANK	1	
10	366118700	FUEL TANK	1	
11-1	001210815	BOLT 8X15 H	3	
11-2	030208200	WASHER, LOCK M8	3	
12	952401450	WASHER 8.5X22X3	2	
13	031108160	WASHER, FLAT M8	1	
14	959300770	STRAINER #508	1	
15	366459790	PACKING, FUEL TANK	1	
16	366345280	HOLDER, FILTER	1	
17	020305040	NUT M5	3	
18	030205130	WASHER, LOCK M5	3	
19	959026122	FUEL HOSE L=70	1	
20	954406420	HOSE BAND 10.5	2	
22	009110037	TAPPING SCREW 5X20	2	
41	366217170	ROLLER	2	
42	091005020	SCREW 5X20	4	
43	022610505	FLANGE NUT M5 H	4	
51	955010311	TP22 TACHO/HOUR METER	1	
53	955010305	CURL CORD TP22	1	
54	366345620	FINISHER, METER	1	
55	454010020	CLAMP, TC100	5	
56	954010270	CLIP AB-3N	1	
101	959026199	FUEL HOSE 1M	1	
102	954406420	HOSE BAND 10.5	4	
103	26365012A3	FILTER, FUEL CP	1	
104	959021722	FUEL HOSE 4.5X9X250	1	
106	959407720	TUBE, V 11X13X180	1	

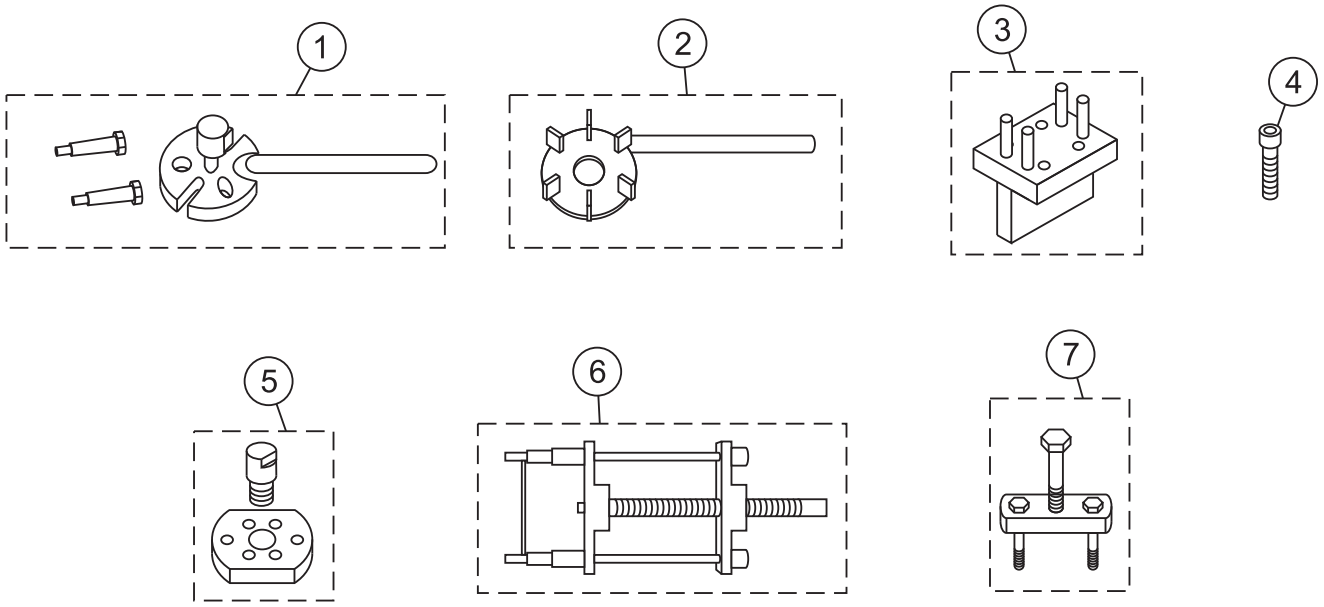
COMBINATION LEVER ASSY.



COMBINATION LEVER ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
A	366900042	LEVER AY W/T, WIRE	1	INCLUDES ITEMS W/@
				REPLACES 366900040
1@$	366349430	FUEL COCK	1	REPLACES 366346260
2@$	366010310	LEVER	1	REPLACES 366010180
3@	366010190	SLIDER	1	
4@	366010200	END CAP	1	
5@	366010210	WIRE CAP	1	
6@$	366010220	BOLT & WASHER SET	1	
7@	020408050	NUT M8, H=5	2	
8@	959407650	SOCKET HEAD SCREW/TH. WIRE	1	
9@$	366010320	STOP SWITCH CP	1	REPLACES 366010260
10@	956100063	THROTTLE WIRE	1	
11@$	094010051	TAPPING SCREW B1 4X12	4	
12@$	094010052	TAPPING SCREW B1 4X30	1	
13@$	050200150	O-RING P-15	1	
14@$	050200110	O-RING P-11	1	

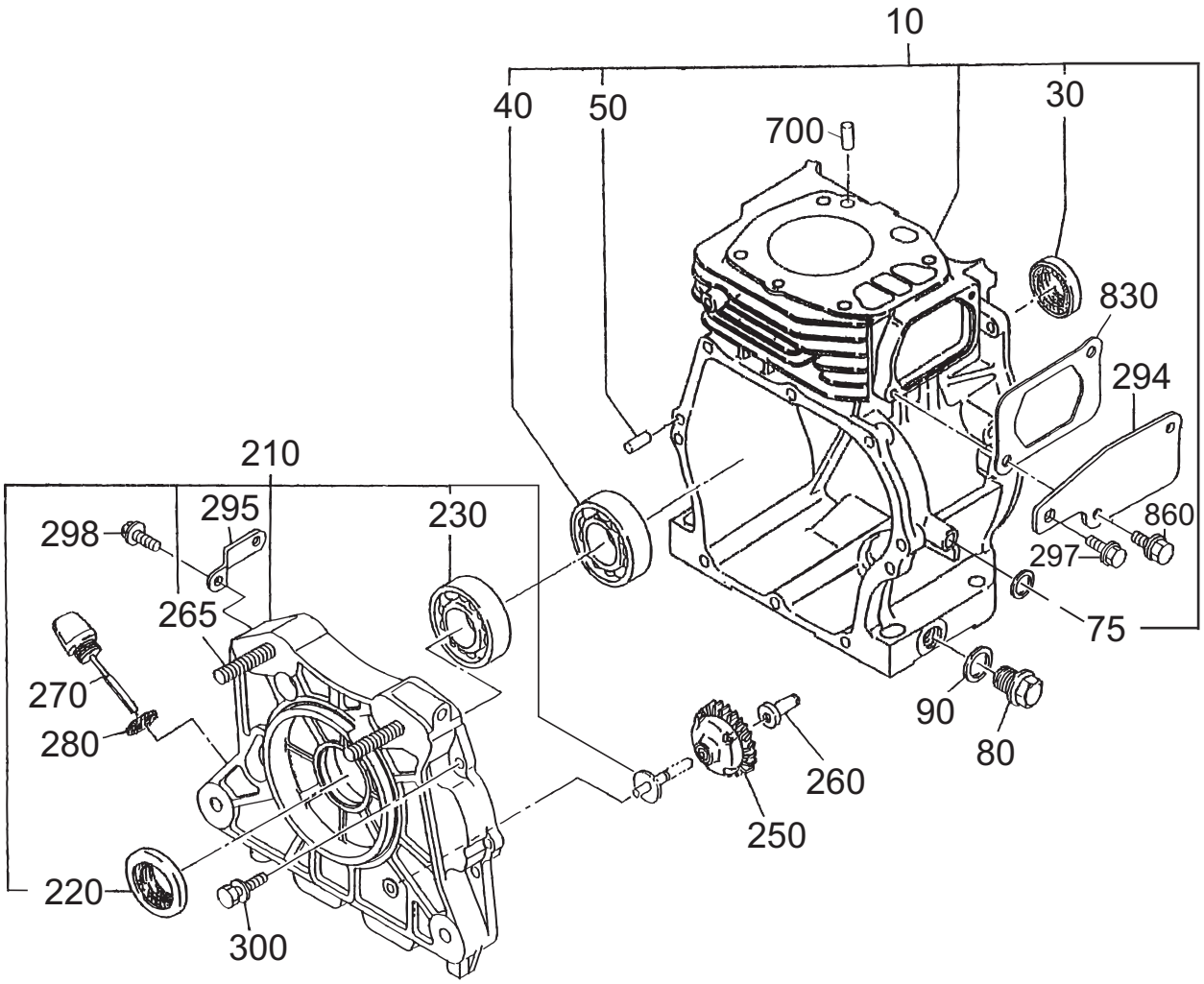
TOOLS



TOOLS

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	981010400	CLUTCH PULLER A	1	
2	983010060	CLUTCH MOUNTER	1	
3	983910090	PISTON ROD HOLDER	1	
4	009110044	SOCKET HEAD BOLT 8X50 (FULL THREAD) CRANK GEAR REMOVER	2	
5	983910020	CLUTCH PULLER B	1	
6	983010040	SPRING CYLINDER REMOVER	1	
7	983910010	PISTON END REMOVER	1	

CRANKCASE ASSY.



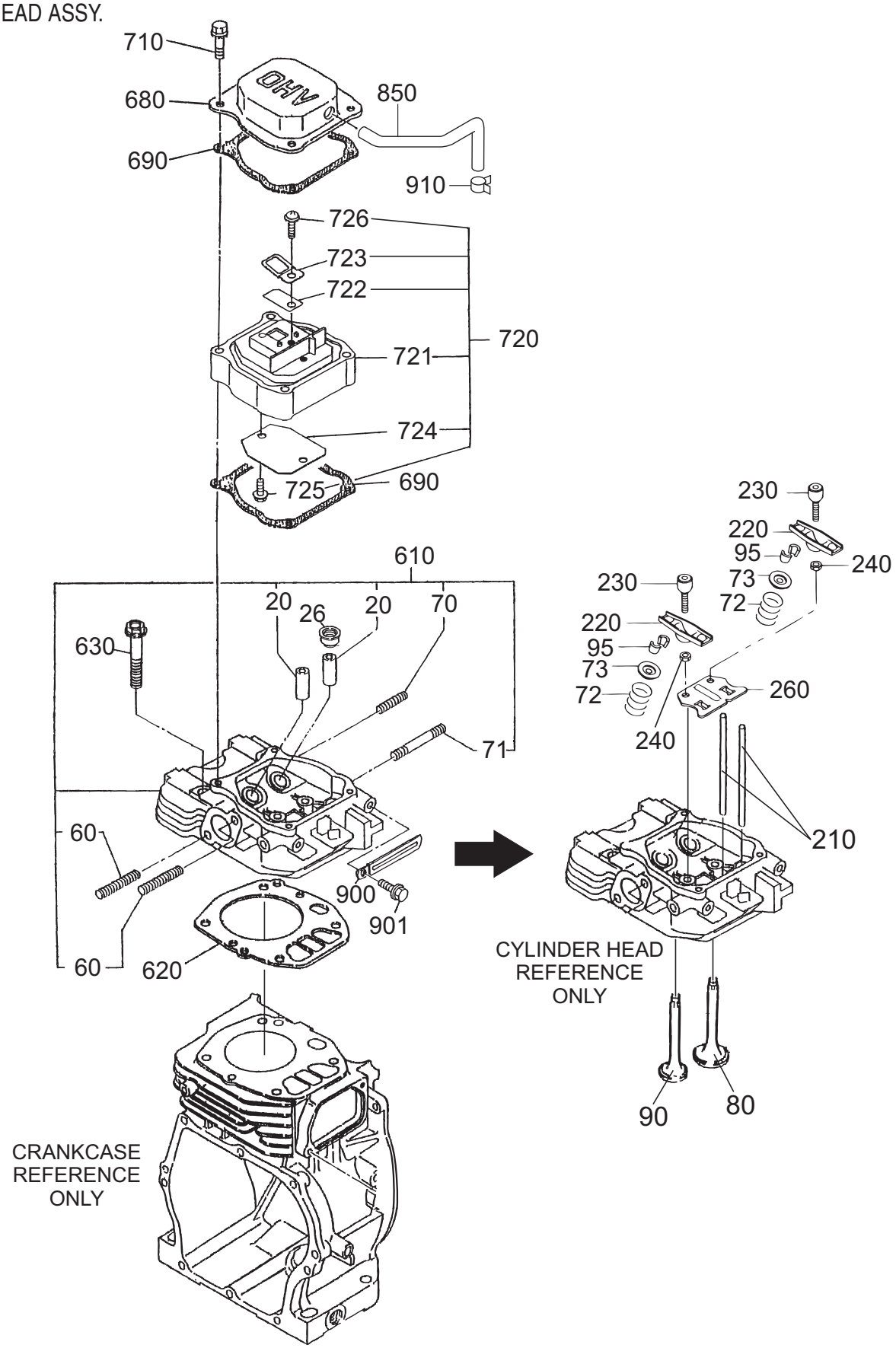
NOTE

USE LIQUID GASKET FOR CYLINDER AND INSULATOR GASKET.

CRANKCASE ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
10	2521030141	CRANKCASE CP	1	INCLUDES ITEMS W/ #
30#	0440250150	OIL SEAL	1	
40#	0600250100	BALL BEARING	1	
50#	0310060020	DOWEL PIN	2	
75#	0440080010	OIL SEAL VC 8X14X4	1	
80	0401140030	PLUG	2	
90	0211140020	GASKET	2	
210	2521110301	MAIN BEARING COVER CP	1	INCLUDES ITEMS W/ $
220$	0440250160	OIL SEAL	1	
230$	0600250010	BALL BEARING 6205C3	1	
250	2274500301	GOVERNOR GEAR CP	1	
260	2054190103	GOVERNOR SLEEVE	1	
265$	0108100030	STUD	2	
270	2686360301	OIL GAUGE CP	1	
280	X213160020	GASKET	1	
294	2521700201	BRACKET CP (M.B.C)	1	
295	2521700101	SUPPORT (M.B.C)	1	
297	0011308160	BOLT AND WASHER ASSY	1	
298	0011308160	BOLT AND WASHER ASSY	2	
300	0130060200	BOLT AND WASHER ASSY	8	
700	0310060020	DOWEL PIN	2	
830	2681620103	GASKET, BREATHER COVER	1	
860	0011306160	BOLT AND WASHER ASSY	2	

CYLINDER HEAD ASSY.

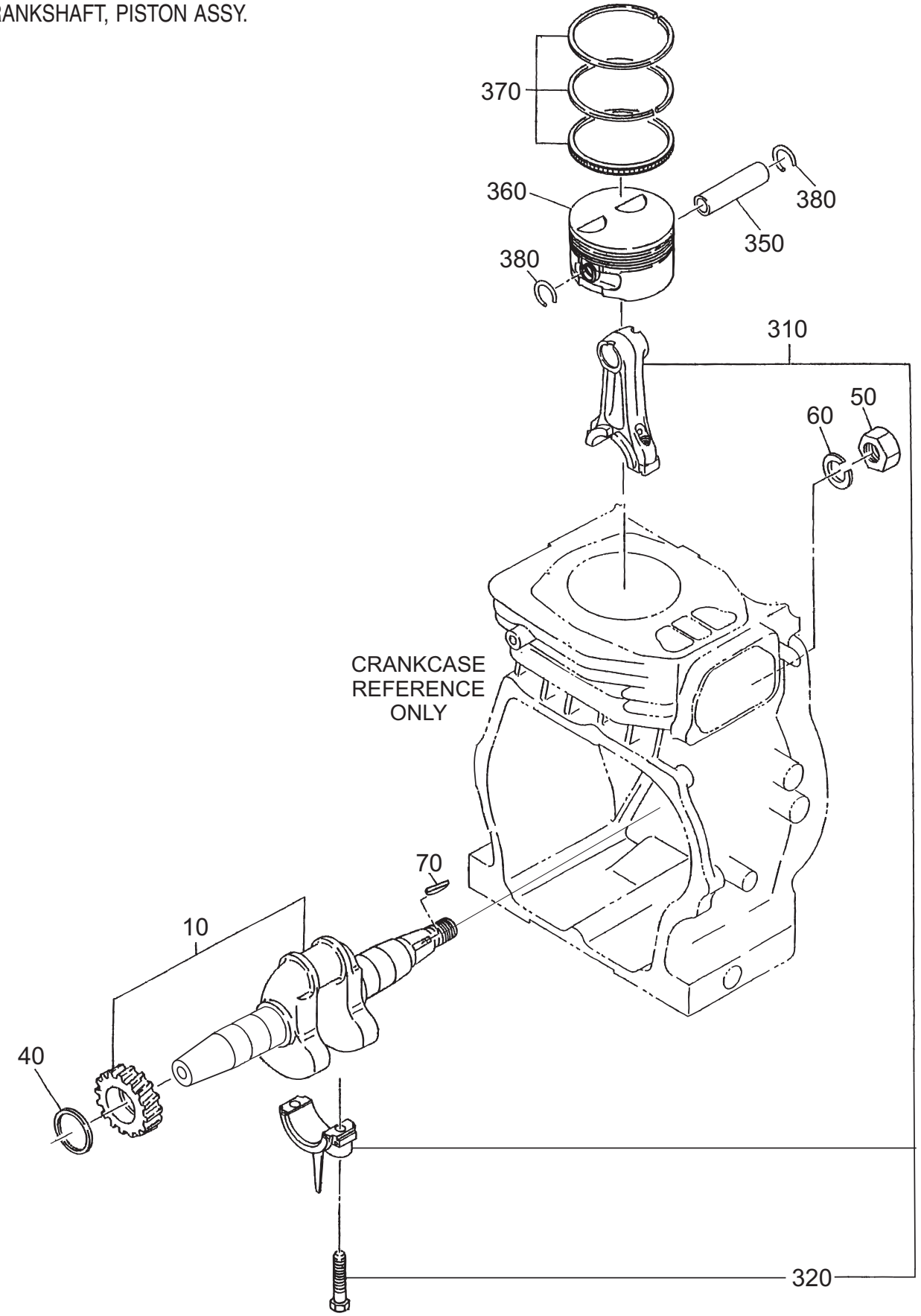


ROBIN EH122D46530 ENGINE — CYLINDER HEAD ASSY.

CYLINDER HEAD ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
20#	2371420203	VALVE GUIDE O/S	2	
26	2771601001	STEM SEAL	1	
60#	0105080480	STUD	2	
70#	0105060131	STUD	1	
71#	0013906600	STUD	1	
72	2533360103	VALVE SPRING	2	
73	2693370103	SPRING RETAINER	2	
80	2683340103	INTAKE VALVE	1	
90	2683350103	EXHAUST VALVE	1	
95	13210KA031	COLLET VALVE	4	
210	2683530103	PUSH ROD	2	
220	2693600103	ROCKER ARM	2	
230	2693580103	BOLT, PIVOT	2	
240	0170060090	NUT	2	
260	2693650103	GUIDE PLATE	1	
610	2681310121	CYLINDER HEAD CP	1	INCLUDES ITEMS W/ #
620	2531500133	GASKET, HEAD	1	
630	0110080100	FLANGE BOLT	4	
680	2521550203	ROCKER COVER	1	
690	2691600403	GASKET, ROCKER, COVER	2	
710	0110060170	FLANGE BOLT	4	
720	2521560120	SPACER ASSY, BREATHER	1	INCLUDES ITEMS W/ $
721$	2521560113	SPACER, BREATHER	1	
722$	2521600103	LEAF VALVE	1	
723$	2521610103	RETAINER PLATE	1	
724$	2521440123	PLATE	1	
725$	0110060150	FLANGE BOLT	2	
726$	0043506120	SCREW AND WASHER	1	
850	2681800503	RUBBER PIPE	1	
900	0566000250	CLAMP	1	
901	0110060020	FLANGE BOLT	1	
910	0561120040	HOSE CLAMP	1	

CRANKSHAFT, PISTON ASSY.

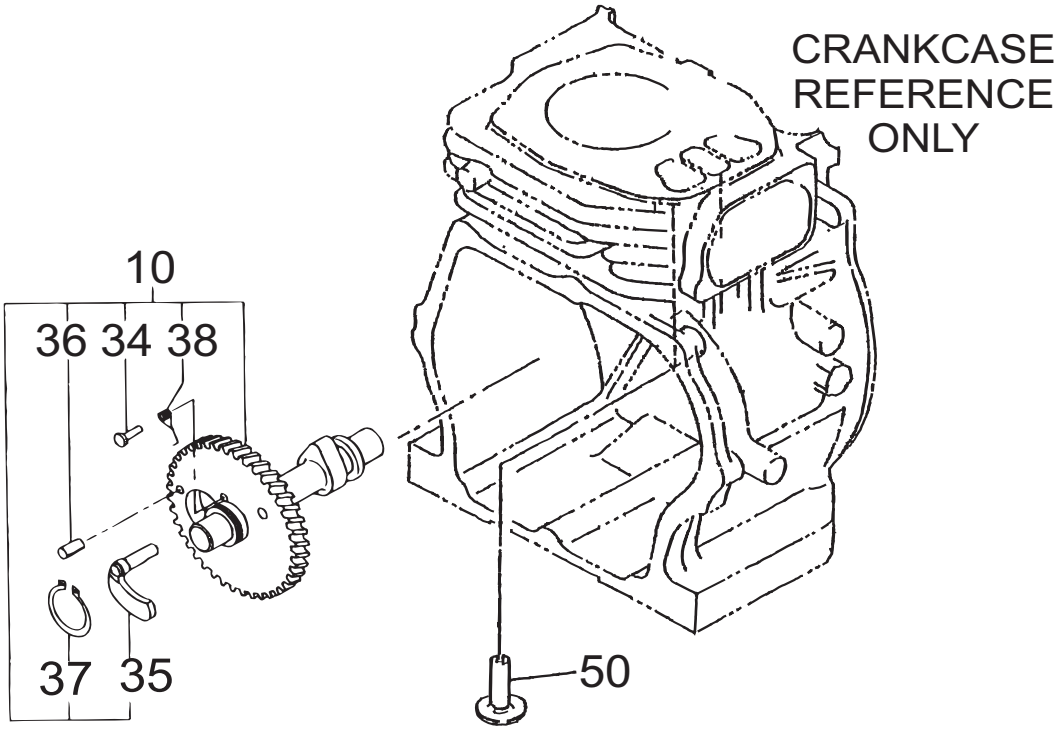


ROBIN EH122D46530 ENGINE — CRANKSHAFT, PISTON ASSY.

CRANKSHAFT, PISTON ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
10	2682190501	CRANK SHAFT CP	1	
40	0230250110	SPACER T=0.6	1	
40	0230250120	SPACER T=0.8	1	
40	0230250130	SPACER T=1.0	1	
50	0021814000	NUT	1	
60	0032014000	SPRING WASHER	1	
70	0323030010	WOODRUFF KEY	1	
310	2522250120	CONNECTING ROD ASSY	1	..... INCLUDES ITEM W/ #
320#	2362300103	CONNECTING ROD BOLT	2	
350	2682330103	PISTON PIN	1	
360	26823401H3	PISTON STD	1	
360	26823402H3	PISTON O.S. 0.25	1	
360	26823403H3	PISTON O.S. 0.5	1	
370	2522350117	PISTON RING SET, STD	1	
370	2522350217	PISTON RING SET 0.25 O.S.	1	
370	2522350317	PISTON RING SET 0.50 O.S.	1	
380	2152500403	CLIP	2	

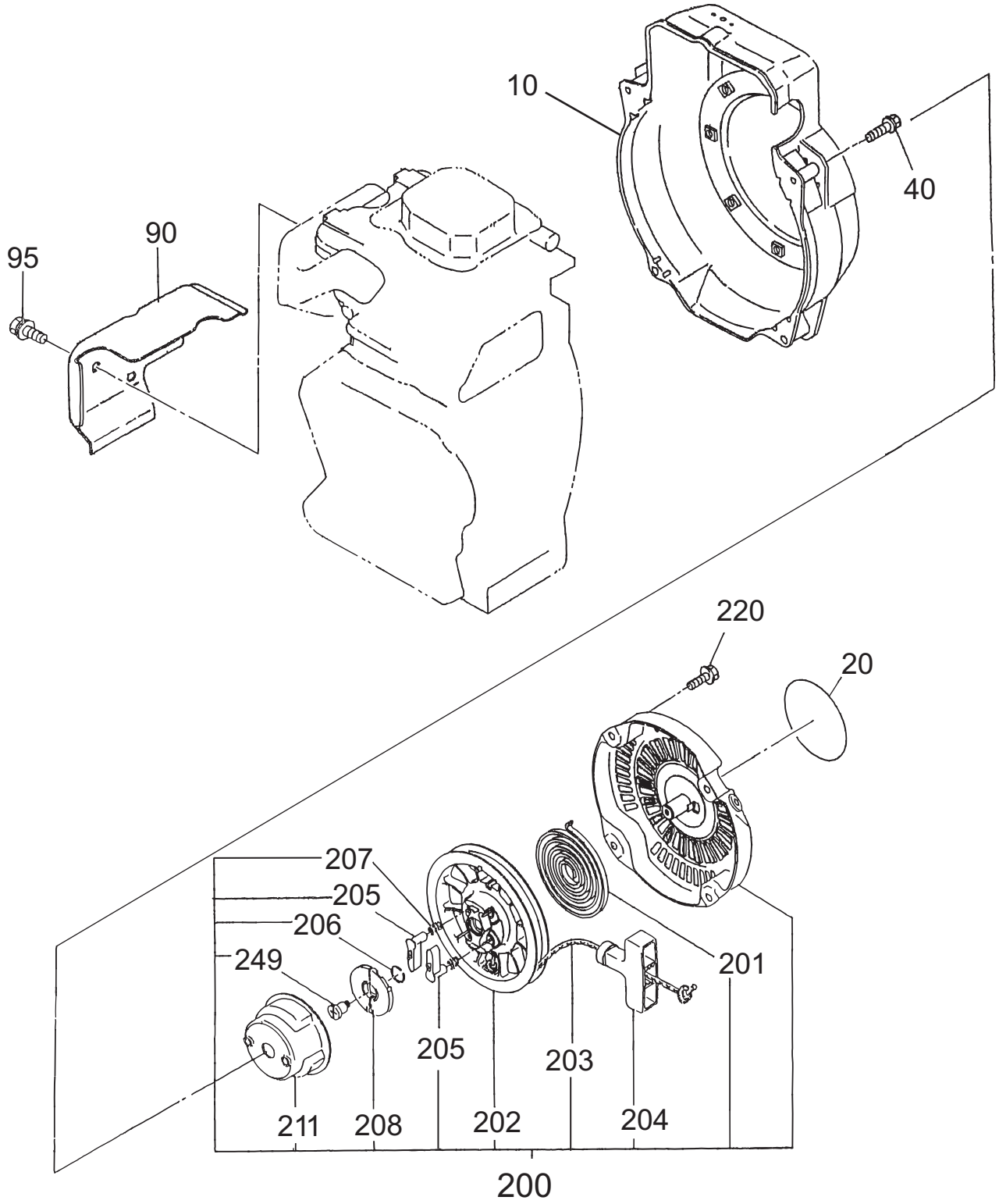
CAMSHAFT ASSY.



CAMSHAFT ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
10	2533170111	CAMSHAFT CP	1	INCLUDES ITEMS W/ #
34#	2273860123	PIN (SPRING)	1	
35#	2273640113	RELEASE LEVER	1	
36#	0051904100	SPRING PIN	1	
37#	0031522000	SNAP RING	1	
38#	2273870103	RETURN SPRING	1	
50	2393330113	TAPPET	2	

RECOIL STARTER ASSY.

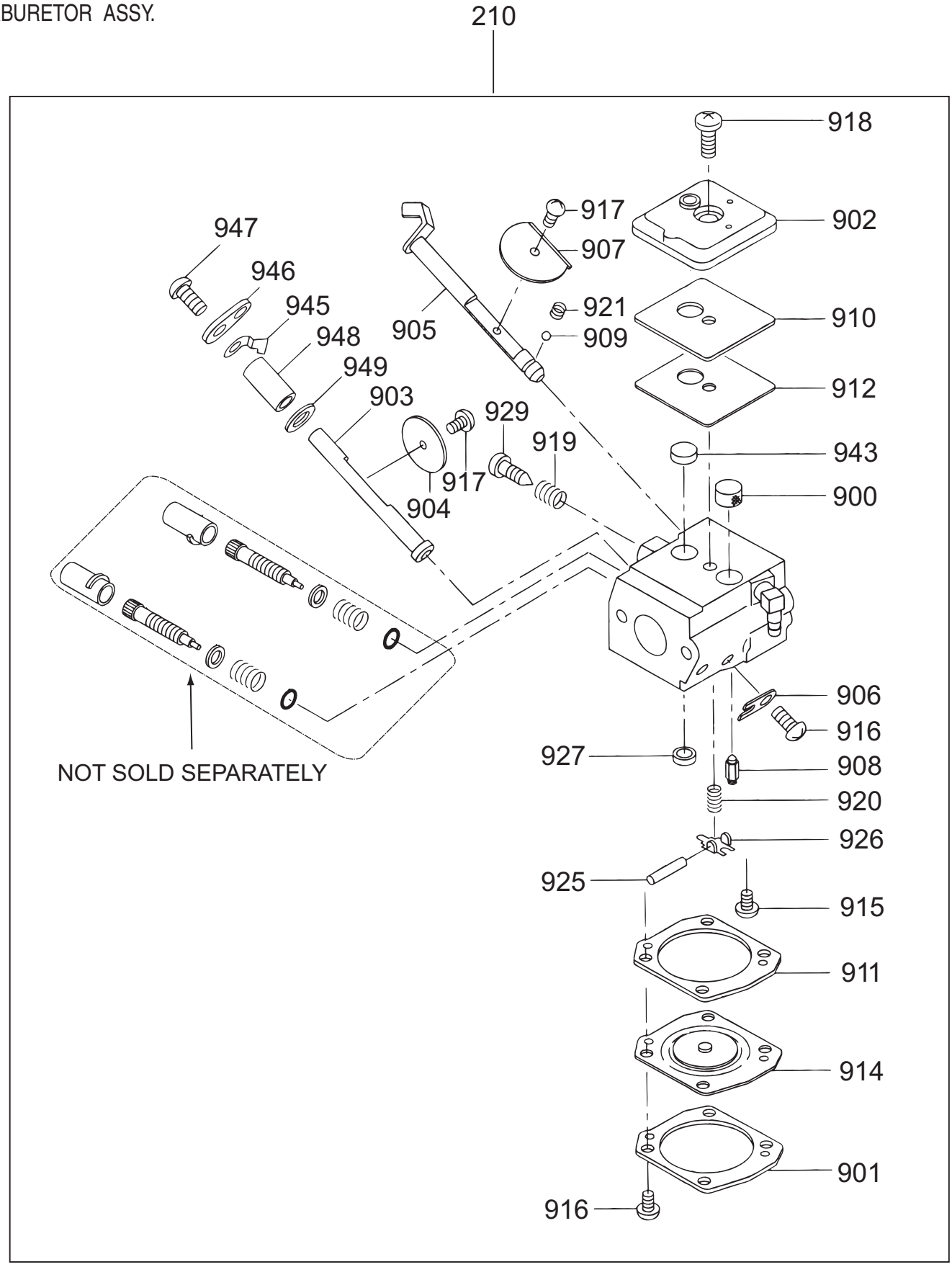


ROBIN EH122D46530 ENGINE — RECOIL STARTER ASSY.

RECOIL STARTER ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
10	2525165221	BLOWER HOUSING CP	1	
20	920100240	DECAL, (M-MARK)	1	
40	0011406550	BOLT AND WASHER ASSY 6X55	4	
90	2685270303	HEAD COVER	1	
95	0110060140	FLANGE BOLT	2	
200	2685020130	RECOIL STARTER ASSY	1	INCLUDES ITEMS W/ #
201#	2705011508	SPIRAL SPRING	1	
202#	2695012008	REEL	1	
203#	2825011118	STARTER ROPE	1	
204#	2615010008	STARTER KNOB	1	
205#	2705012508	RATCHET	2	
206#	2275013108	FRICTION SPRING	1	
207#	2275013508	RETURN SPRING	2	
208#	2705026108	RATCHET GUIDE	1	
211#	2685014518	STARTER PULLEY	1	
220	0110060010	FLANGE BOLT	4	
249#	2275015208	SET SCREW	1	

CARBURETOR ASSY.

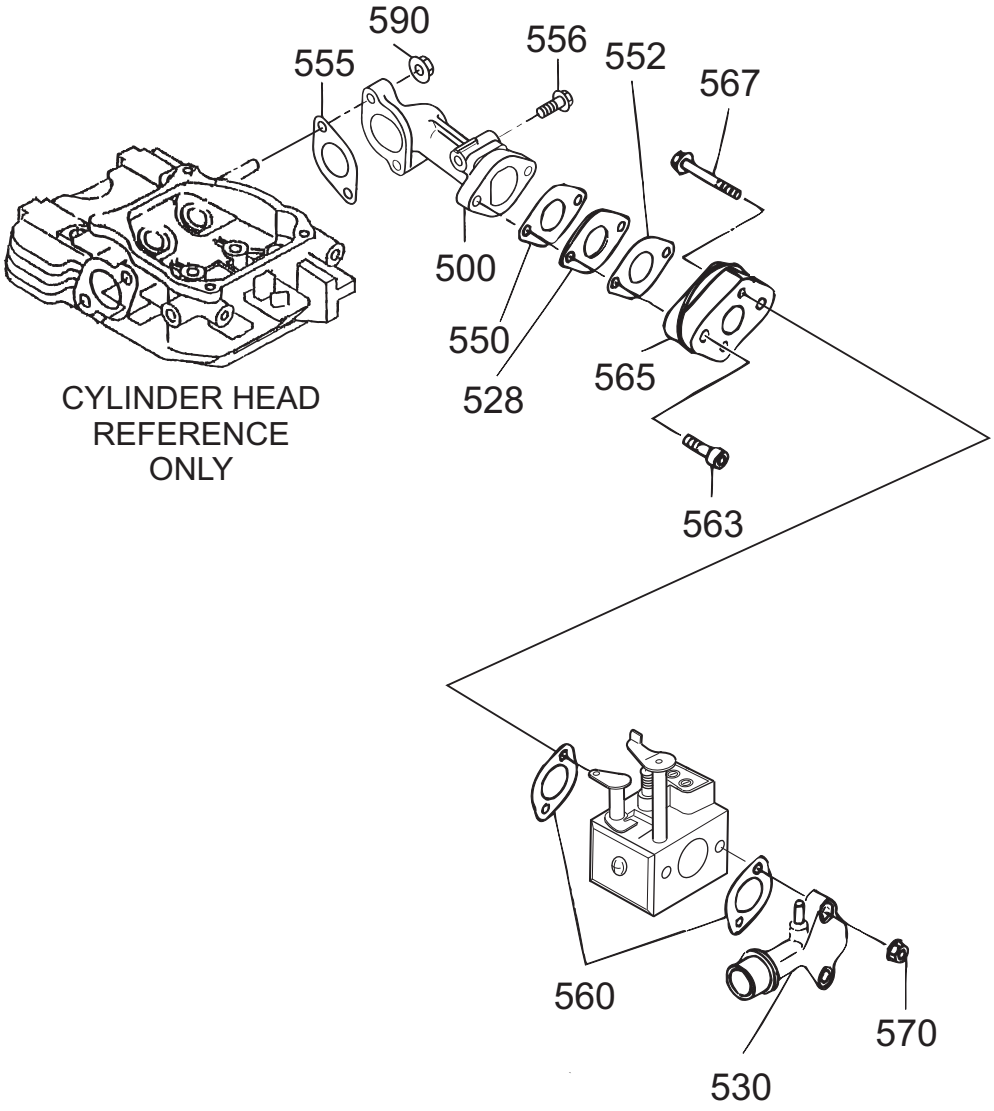


ROBIN EH122D46530 ENGINE — CARBURETOR ASSY.

CARBURETOR ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
210	2526257100	CARBURETOR ASSY	1	INCLUDES ITEMS W/ #
900#	5016004010	SCREEN INLET	1	
901#	2526260508	COVER, METALING DIAPHRAGM	1	
902#	2526260408	COVER PUMP	1	
903#	2526261208	THROTTLE SHAFT	1	
904#	1616233508	VALVE THROTTLE	1	
905#	2846260308	SHAFT ASSY CHOKE	1	
906#	5106045040	CLIP	1	
907#	2846260408	VALVE, CHOKE	1	
908#	1616255208	VALVE, INLET NEEDLE	1	
909#	1476258408	BALL	1	
910#	1616238008	GASKET PLUG	1	
911#	1616238108	GASKET, METALING DIAPHRAGM	1	
912#	2526261008	DIAPHRAGM PUMP	1	
914#	1616238308	DIAPHRAGM ASSY, METALING	1	
915#	1066257508	SCREW	1	
916#	1066257608	SCREW ASSY	5	
917#	1476257308	SCREW	2	
918#	2846260008	SCREW	1	
919#	1616245408	SPRING, IDLE ADJUST	1	
920#	1616245108	SPRING, METALING LEVER	1	
921#	1476258308	SPRING, CHOKE	1	
925#	1616236808	PIN, METALING LEVER	1	
926#	1616236908	LEVER, METALING	1	
927#	1476257508	PLUG	1	
929#	1616238508	SCREW, IDLE ADJUST	1	
943#	2526261108	SPRING PUMP	1	
945#	1616255108	STOPPER, THROTTLE	1	
946#	2526260308	LEVER, THROTTLE	1	
947#	1616255308	SCREW VALVE	2	
948#	2526260208	SPACER, THROTTLE LEVER	1	
949#	2526260108	WASHER	1	

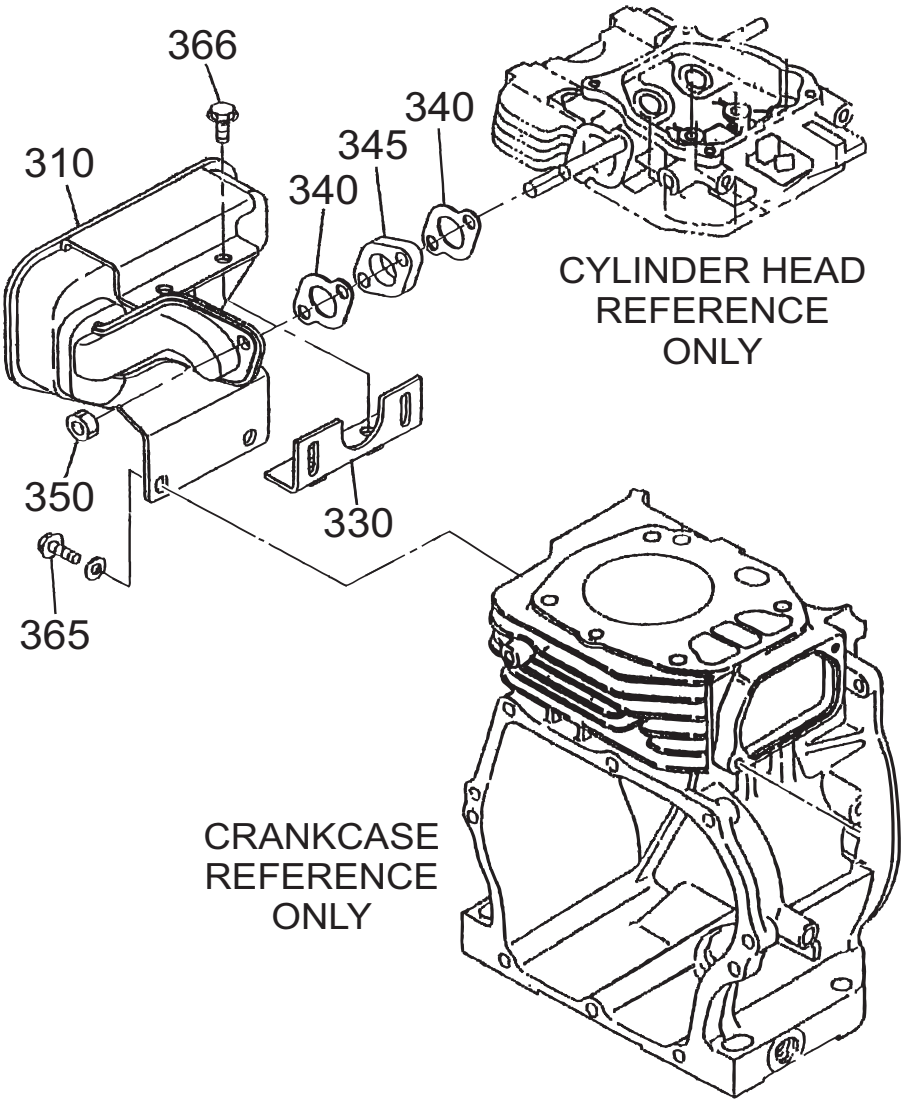
AIR CLEANER ASSY.



AIR CLEANER ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
500	2683300413	INTAKE PIPE	1	
528	2683660103	PLATE	1	
530	2843810103	INTAKE PIPE	1	
550	1573500103	GASKET, INSULATOR	1	
552	2843650103	GASKET (INTAKE)	1	
555	2823590103	GASKET, INSULATOR	1	
556	0011406400	BOLT AND WASHER ASSY	1	
560	1066500203	GASKET (CARB.)	2	
563	0119060090	BOLT (SOCKET HEAD)	2	
565	2843310103	INTAKE FLANGE CP	1	
567	0100050110	BOLT M5X0.8X70L	2	
570	0176050010	SELF LOCK NUT	2	
590	0023806000	FLANGE NUT	2	

MUFFLER ASSY.

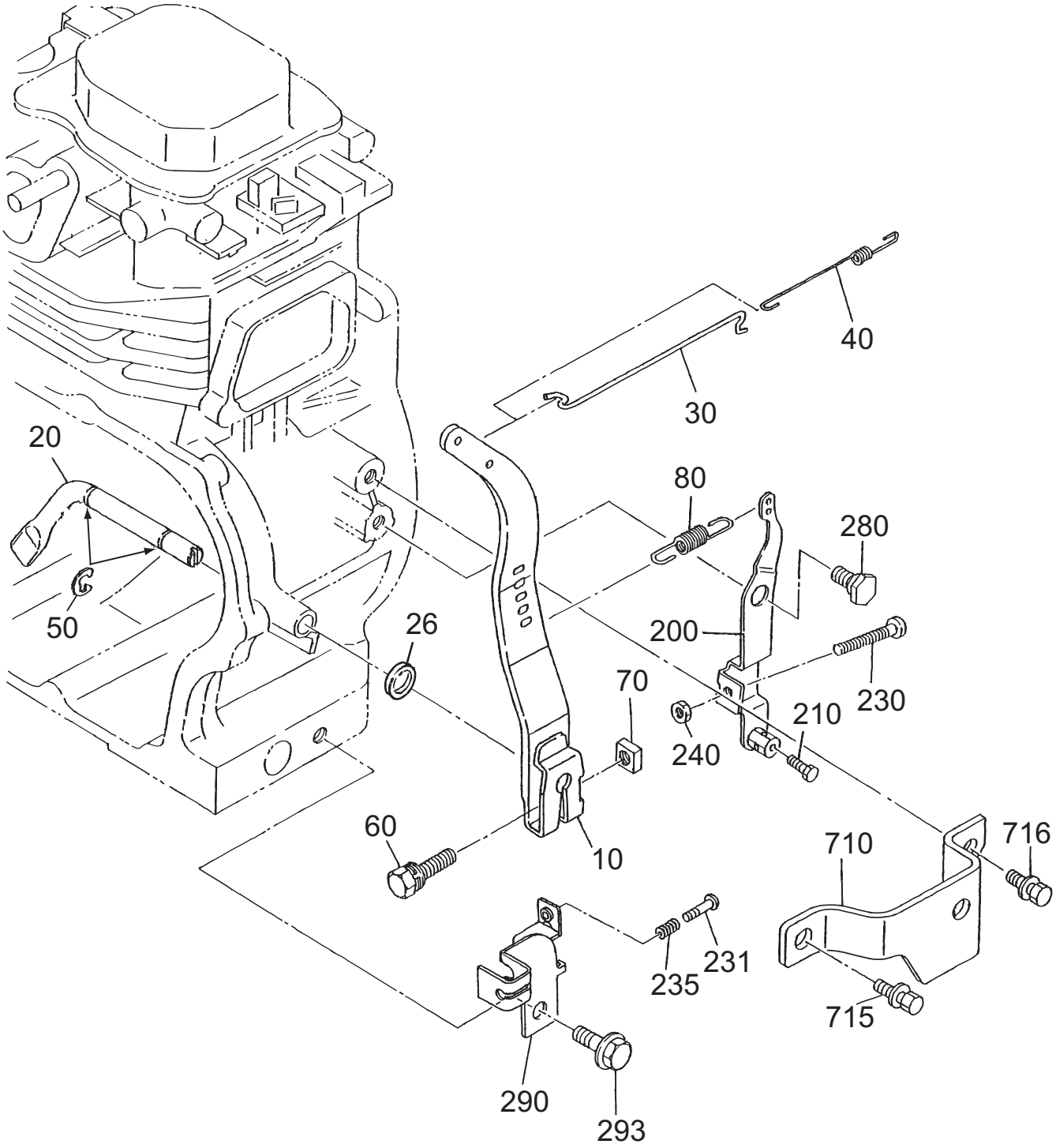


ROBIN EH122D46530 ENGINE — MUFFLER ASSY.

MUFFLER ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
310	2523040111	MUFFLER CP	1	
330	2523700111	BRACKET CP	1	
340	2533520103	GASKET, MUFFLER	2	
345	2523650123	SPACER, EXHAUST	1	
350	0176080020	SELF LOCK NUT	2	
365	0011308160	BOLT AND WASHER ASSY	2	
366	0011408160	BOLT AND WASHER 8X16	2	

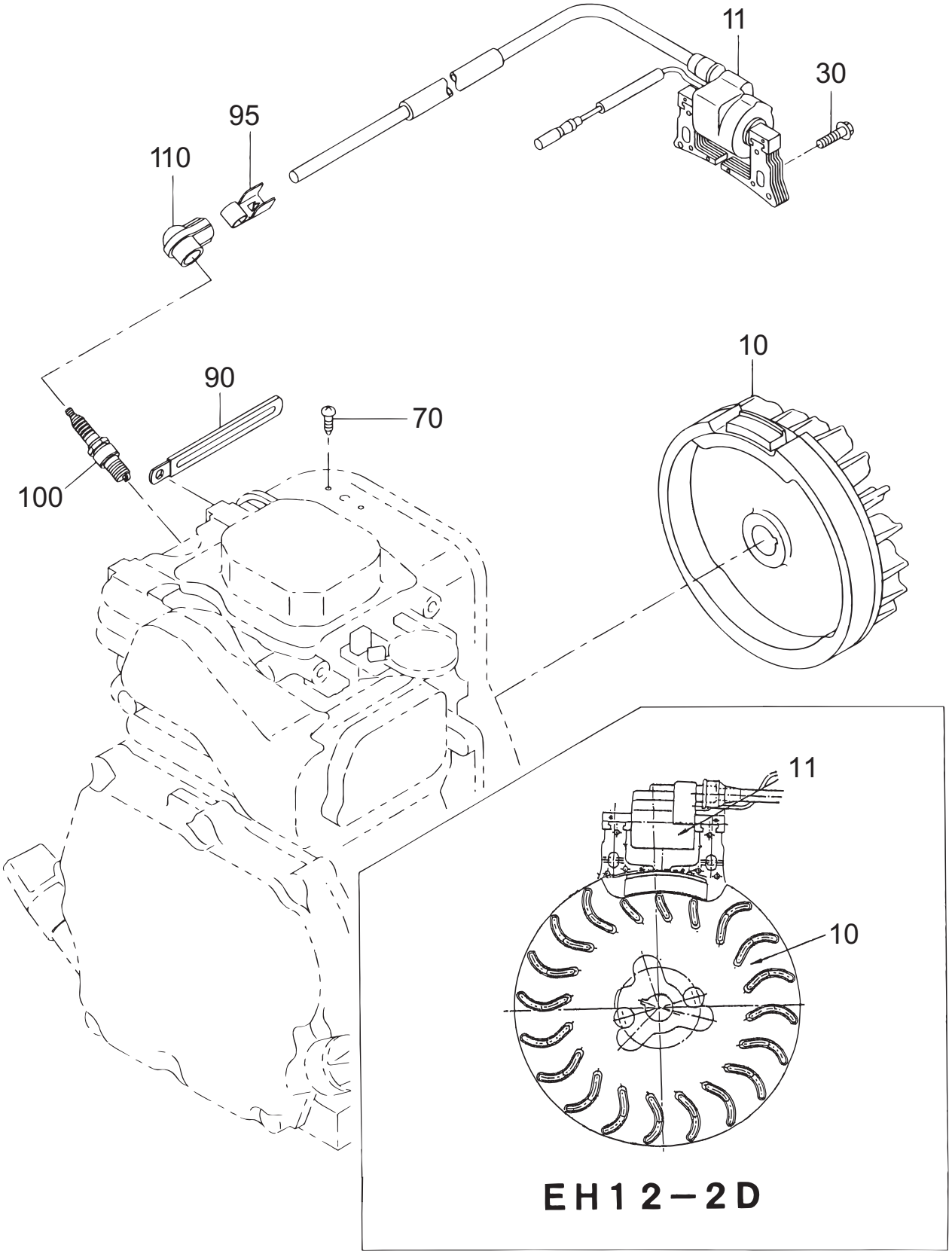
GOVERNOR ASSY.



GOVERNOR ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
10	2524230303	GOVERNOR LEVER CP	1	
20	2274220103	GOVERNOR SHAFT	1	
26	0031108000	WASHER	1	
30	2544270101	GOVERNOR ROD CP	1	
40	2544280103	ROD SPRING	1	
50	0031306000	CLIP	2	
60	0011406300	BOLT AND WASHER ASSY	1	
70	0186060020	NUT	1	
80	2524250323	GOVERNOR SPRING	1	
200	2524340230	SPEED CONTROL ASSY	1	
210	0116040030	BOLT	1	
230	0043105250	SCREW, PANHEAD	1	
231	0043104250	SCREW	1	
235	2684500113	CONTROL SPRING	1	
240	0021705000	NUT	1	
280	2264310101	LINK PIVOT CP	1	
290	2684420201	WIRE BRACKET	1	
293	0110060030	FLANGE BOLT	1	
710	2524280111	PROTECTOR CP, GOVERNOR	1	
715	0011308160	BOLT AND WASHER ASSY	1	
716	0110060030	FLANGE BOLT	1	

FLYWHEEL IGNITION ASSY.



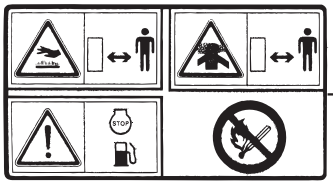
ROBIN EH122D46530 ENGINE — FLYWHEEL IGNITION ASSY.

FLYWHEEL IGNITION ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
10	2687933201	FLYWHEEL CP	1	
11	2697943011	IGNITION COIL CP	1	
30	0011406250	BOLT AND WASHER ASSY	2	
70	0150040090	TAPPING SCREW	2	
90	0566000250	CLAMP	1	
95	0659000010	PLUG TERMINAL	1	
100	0650140580	SPARK PLUG BR6ES	1	
110	2307510113	SPARK PLUG CAP	1	

LABELS AND ACCESSORIES

LABELS



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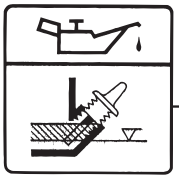
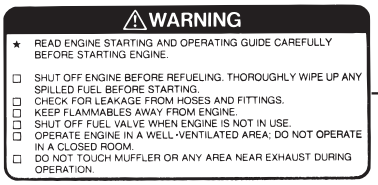


101


⚠WARNING
★ READ ENGINE STARTING AND OPERATING GUIDE CAREFULLY BEFORE STARTING ENGINE.
☐ SHUT OFF ENGINE BEFORE REFUELING. THOROUGHLY WIPE UP ANY SPILLED FUEL BEFORE STARTING.
☐ CHECK FOR LEAKAGE FROM HOSES AND FITTINGS.
☐ KEEP FLAMMABLES AWAY FROM ENGINE.
☐ SHUT OFF FUEL VALVE WHEN ENGINE IS NOT IN USE.
☐ OPERATE ENGINE IN A WELL-VENTILATED AREA; DO NOT OPERATE IN A CLOSED ROOM.
☐ DO NOT TOUCH MUFFLER OR ANY AREA NEAR EXHAUST DURING OPERATION.

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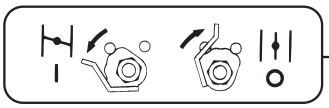

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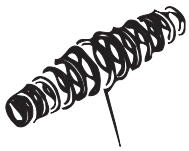
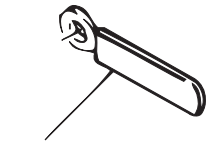
ACCESSORIES



201



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ROBIN EH122D46530 ENGINE — LABELS AND ACCESSORIES

LABELS AND ACCESSORIES

NO.	PART NO.	PART NAME	QTY.	REMARKS
100	0732004450	LABEL, CAUTION	1	
101	0732004520	LABEL, OIL CAUTION	1	
102	0732003900	LABEL, WARNING	1	
103	0732005020	LABEL CHOKE	1	
201	0830000010	COIL SPRING	1	
202	2267510103	CLAMP	1	

TERMS AND CONDITIONS OF SALE — PARTS

PAYMENT TERMS

Terms of payment for parts are net 30 days.

FREIGHT POLICY

All parts orders will be shipped collect or prepaid with the charges added to the invoice. All shipments are F.O.B. point of origin. Multiquip's responsibility ceases when a signed manifest has been obtained from the carrier, and any claim for shortage or damage must be settled between the consignee and the carrier.

MINIMUM ORDER

The minimum charge for orders from Multiquip is $15.00 net. Customers will be asked for instructions regarding handling of orders not meeting this requirement.

RETURNED GOODS POLICY

Return shipments will be accepted and credit will be allowed, subject to the following provisions:

1. A Returned Material Authorization must be approved by Multiquip prior to shipment.
2. To obtain a Return Material Authorization, a list must be provided to Multiquip Parts Sales that defines item numbers, quantities, and descriptions of the items to be returned.
    a. The parts numbers and descriptions must match the current parts price list.
    b. The list must be typed or computer generated.
    c. The list must state the reason(s) for the return.
    d. The list must reference the sales order(s) or invoice(s) under which the items were originally purchased.
    e. The list must include the name and phone number of the person requesting the RMA.
3. A copy of the Return Material Authorization must accompany the return shipment.
4. Freight is at the sender's expense. All parts must be returned freight prepaid to Multiquip's designated receiving point.
5. Parts must be in new and resalable condition, in the original Multiquip package (if any), and with Multiquip part numbers clearly marked.
6. The following items are not returnable:
    a. Obsolete parts. (If an item is in the price book and shows as being replaced by another item, it is obsolete.)
    b. Any parts with a limited shelf life (such as gaskets, seals, "O" rings, and other rubber parts) that were purchased more than six months prior to the return date.
    c. Any line item with an extended dealer net price of less than $5.00.
    d. Special order items.
    e. Electrical components.
    f. Paint, chemicals, and lubricants.
    g. Decals and paper products.
    h. Items purchased in kits.
7. The sender will be notified of any material received that is not acceptable.
8. Such material will be held for five working days from notification, pending instructions. If a reply is not received within five days, the material will be returned to the sender at his expense.
9. Credit on returned parts will be issued at dealer net price at time of the original purchase, less a 15% restocking charge.
10. In cases where an item is accepted, for which the original purchase document can not be determined, the price will be based on the list price that was effective twelve months prior to the RMA date.
11. Credit issued will be applied to future purchases only.

PRICING AND REBATES

Prices are subject to change without prior notice. Price changes are effective on a specific date and all orders received on or after that date will be billed at the revised price. Rebates for price declines and added charges for price increases will not be made for stock on hand at the time of any price change.

Multiquip reserves the right to quote and sell direct to Government agencies, and to Original Equipment Manufacturer accounts who use our products as integral parts of their own products.

SPECIAL EXPEDITING SERVICE

A $35.00 surcharge will be added to the invoice for special handling including bus shipments, insured parcel post or in cases where Multiquip must personally deliver the parts to the carrier.

LIMITATIONS OF SELLER'S LIABILITY

Multiquip shall not be liable hereunder for damages in excess of the purchase price of the item with respect to which damages are claimed, and in no event shall Multiquip be liable for loss of profit or good will or for any other special, consequential or incidental damages.

LIMITATION OF WARRANTIES

No warranties, express or implied, are made in connection with the sale of parts or trade accessories nor as to any engine not manufactured by Multiquip. Such warranties made in connection with the sale of new, complete units are made exclusively by a statement of warranty packaged with such units, and Multiquip neither assumes nor authorizes any person to assume for it any other obligation or liability whatever in connection with the sale of its products. Apart from such written statement of warranty, there are no warranties, express, implied or statutory, which extend beyond the description of the products on the face hereof.

Effective: February 22, 2006

NOTES

OPERATION AND PARTS MANUAL

HERE'S HOW TO GET HELP

PLEASE HAVE THE MODEL AND SERIAL NUMBER ON-HAND WHEN CALLING

UNITED STATES

Multiquip Corporate Office

18910 Wilmington Ave.
Carson, CA 90746
Contact: mq@multiquip.com

Tel. (800) 421-1244
Fax (800) 537-3927

MQ Parts Department

800-427-1244
310-537-3700

Fax: 800-672-7877
Fax: 310-637-3284

Mayco Parts

800-306-2926
310-537-3700

Fax: 800-672-7877
Fax: 310-637-3284

Warranty Department

800-421-1244, Ext. 279
310-537-3700, Ext. 279

Fax: 310-537-1173

Service Department

800-421-1244
310-537-3700

Fax: 310-537-4259

Technical Assistance

800-478-1244

Fax: 310-631-5032

MEXICO

MQ Cipsa

Carr. Fed. Mexico-Puebla KM 126.5
Momoxpan, Cholula, Puebla 72760 Mexico
Contact: pmastretta@cipsa.com.mx

Tel: (52) 222-225-9900
Fax: (52) 222-285-0420

UNITED KINGDOM

Multiquip (UK) Limited Head Office

Hanover Mill, Fitzroy Street,
Ashton-under-Lyne,
Lancashire OL7 0TL
Contact: sales@multiquip.co.uk

Tel: 0161 339 2223
Fax: 0161 339 3226

CANADA

Multiquip

4110 Industriel Boul.
Laval, Quebec, Canada H7L 6V3
Contact: jmartin@multiquip.com

Tel: (450) 625-2244
Fax: (450) 625-8664

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This manual MUST accompany the equipment at all times. This manual is considered a permanent part of the equipment and should remain with the unit if resold.

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